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A National Newspaper for Every Branch of the Industry

Automotive Daily News

★CARS★ SHOP EQUIPMENT TRUCKS ★★AVIATION★★ PARTS ACCESSORIES ★TIRES★

Vol. 11. No. 1484 | Entered as second-class matter Aug. 27, 1925, Post Office, N. Y., N. Y., Under Act of March 3, 1879 | NEW YORK, FRIDAY, JUNE 5, 1931 | 5 Cents. $12 Per Year

Dealer Urges Car Makers To Prohibit Acceptance Of Used Cars Against New

Plan Would Divorce Entire Dealer Body From Used Car Field and Establish Independent Outlets

NEW YORK, June 4.—Appealing to automobile manufacturers to take definite action to discourage wild trading in used cars, C. Edward Barnett of Barnett & Reese Motor Center, Bellevue, Ill., has submitted a plan to the National Automobile Chamber of Commerce for consideration at the annual members' meeting tomorrow urging rather drastic measures to control the situation.

Under Mr. Barnett's plan the new car dealer would be completely divorced from the used car business. Classes in the manufacturer's contract would prohibit dealers from accepting used cars as part payment of new cars and separate establishments would have to be organized to handle the purchase and resale of used cars from the consumer.

Mr. Barnett's plan, as outlined in his letter to the directors of the N. A. C. C., is as follows:—

"National Automobile Chamber of Commerce, New York, N. Y.

"Attention Mr. Chairman:

"Gentlemen:—

"In the May 30 issue of the Automotive Daily News I read an article concerning your meeting to be held on June 5 to discuss several topics of major importance to the industry, among them 'What More Can Be Done to Strengthen the Dealer Situation.'

"Permit me to offer my views on the subject of 'The Factories' Obligation to Their Dealers.' I believe there is only one way of making the automobile (game?) a real business and that is by compelling this gang of (erratic nuts) known today as automobile dealers to make business deals and cut this comedy of maintaining a place from which they can give new cars to the public and buy at ridiculous prices the old worn-out junk.

"Every factory wants responsible men and prosperous dealers representing them in every locality regardless of its size. There is only

(Continued on Page 2)

CHRYSLER EXPORT CHIEF SEES GOOD MARKETS ABROAD

New York, June 4.—That consumption of American motor vehicles in European markets this year will exceed 1930 sales is the prediction of W. Ledyard Mitchell, chairman of the board, Chrysler Export Corporation, who has just returned to New York from a two months' tour of the Continent.

Mr. Mitchell considers that the motor outlook in Europe is very encouraging due to the growing rec-

(Continued on Page 4)

G. M., STUDEBAKER AND PACKARD SUE 3 PARTS MAKERS

Milwaukee, Wis., June 4.—Four suits have been filed in Federal Court here against three Washington county concerns by the General Motors Corporation, Studebaker Corporation and Packard Motor Car Company. The companies charged in the suits with infringing on copyrighted trade marks and designs for hub caps are the Standard Products

(Continued on Page 4)

Late News Flashes

Detroit, June 4.—Harry W. Bundy, founder of the Bundy Tubing Company of this city and also chairman of the board, died suddenly Tuesday afternoon at his summer home on Beaver Island. The funeral will be held today. Mr. Bundy, who was 54 years of age, organized the company bearing his name in 1922. The company introduced at the New York show Bundy weld tubing for oil lines.

* * *

Washington, June 4.—William Green, president of Federation of Labor in the American Federationist, suggested here today that President Hoover call a conference of all groups concerned to bring about stabilization of employment and wages before it is necessary to raise huge relief funds to meet the situation. Green advocates a six-hour day and no cut in wages.

* * *

Milwaukee, Wis., June 4.—Unfilled orders of Allis-Chalmers Manufacturing Company as of May 31, last, totaled $9,813,000, compared with $10,972,000 a month earlier, a decrease of $1,159,000.

New Car Stocks in Dealers' Hands Are Placed at 306,000 as of May 1

NEW YORK, June 4.—Following a slight upturn in stocks of new passenger cars in the hands of retail dealers in the United States, there occurred a substantial decline in April, with the result that inventories as of May 1 are estimated to have stood at 306,000. Used car stocks are estimated to have been about 20 per cent. under a year ago at this time.

New passenger cars in the hands of dealers as of April 1 were estimated at 320,000, and the month of April domestic and export sales of new cars exceeded the production by 14,000 units, reducing the holdings of dealers to 306,000, a decline of 4 per cent.

The estimated total for May 1 of this year compares with an estimate of 438,000 for the corresponding date of last year, a decline in dealer inventories of 30 per cent.

The reduction in the stocks in the hands of dealers during the month of April this year was not as great as that which took place in the corresponding month of 1930, but the necessity for sharp reduction was not as great. On April 1, 1930, stocks approximated 475,000 units and an excess in sales over output during April of that year resulted in a decline in holdings amounting to 37,000, or 7 per cent.

Production of passenger cars by United States manufacturers in April totaled 285,000, which figure, added to the 320,000 new cars in dealers' hands at the begining of the month, brought the total to 605,000. Domestic sales, however, removed approximately 272,000 cars from the floors of the dealers, reducing the grand total to 323,000. Exports accounted for 17,000 additional units, reducing stocks to 306,000.

The experience of April further

(Continued on Page 6)

We Admit We Are Good

CONFIRMATION of the estimate of May production published in The Automotive Daily News on Saturday, May 30, came today in the official figures of the National Automobile Chamber of Commerce, which placed the month's total at 338,307 vehicle units. Our own estimate placed the total at 340,000 units.

These figures, of course, included world production not only by companies members of the N. A. C. C., but by the Ford company as well.

N. A. C. C. Estimates Output In May at 338,307 Units

NEW YORK, June 4.—At the directors' meeting of the National Automobile Chamber of Commerce, held at 366 Madison Ave., in this city today, it was announced that production for May, 1931, by the industry including Ford totaled 338,307 vehicle units. It will be remembered that Automotive Daily News on Saturday, May 30, offered an estimate based on telegraphic reports by the manufactuers, placing the total at 340,000 units.

The May output total of 338,307,

(Continued on Page 2)

RUSCO TO HANDLE TRU-STOP BRAKE REPLACEMENT SALES

Middletown, Conn., June 4.—Arrangements have just been completed between the Russell Manufacturing Company of this city and the American Cable Company of Bridgeport by which Rusco will handle the exclusive replacements distribution of the Tru-Stop brake.

The American Cable Company, which is an associate company of the American Chain Company, has from the first been a user of Rusco Durak material made by the Russell

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TODAY

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HUDSON LAUNCHES JUNE SALES DRIVE; AIM AT APRIL MARK

Detroit, June 4.—Blue ribbons decorate the buttonholes of Hudson and Essex salesmen these days, the ribbon denoting that the wearer has pledged William J. McAneeny, president and general manager of Hudson, that he will sell more cars in June than he did in April.

The contest is declared to be unique, inasmuch as it was "sold" to the men on the basis of Mr. McAneeny's belief that the salesman is the key to better business. No prizes are offered, but Mr. McAneeny has promised "a pleasant surprise" to each man who keeps his pledge.

The campaign was instituted coincident with the wider distribu-

(Continued on Page 6)

Value Readjustment Key To Recovery, Says McDarby

NEW YORK, June 4.—A general readjustment of values is the first step necessary to stimulate business in the United States, N. E. McDarby, vice-president in charge of sales for the Auburn Automobile Company, said yesterday, on his arrival here by plane on an Eastern trip among distributors and dealers of the company's organization.

Last night, McDarby attended a meeting of over 500 Auburn dealers and salesmen representing the Greater New York and New Jersey district. The meeting was held at the Park Central Hotel under the direction of A. R. Gribben, president of the Auburn Sales Company.

"The public buying power has shrunken," the Auburn's executive said, "and until business and industry generally meet the new condition, trade will continue to be slow. While this statement may on the surface appear to be time worn, yet we have found that when fundamentals of it are applied results are astounding.

"For instance, the Auburn Automobile Company is experiencing the greatest year in its history. In the first five months of 1931 we have built and sold 24,838 Auburn and Cord automobiles, as against 13,693 for the entire year of 1930. This increase is to be accounted for only by the fact that more than a year ago we realized that in order to sell automobiles in 1931 we had to give greater value, a brand new product, and individuality. Our entire program was predicated on this basis, and the result has been a tremendous acceptance by the public. Even in difficult times the public will buy if the product is what it wants and the price is right."

Some interesting figures were pre-

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Uses Garage and Service Men as Car Salesmen

See Page 3

Value Readjustment Key To Recovery, Says McDarby

(Continued from Page 1)

sented regarding the Auburn position in the New York area. An inventory of ninety-eight dealers on May 31 disclosed a total stock of 356 new cars, or 3.7 new cars per dealer and 459 used cars with a value of $189,000, 4.7 cars per dealer. In the first five months 113 more Auburn cars were sold in the New York territory than in the years 1925 to 1928.

A telegram read from Ray Faulkner, president of the Auburn company, regretting his inability to be present and complimenting the New York dealers on their showing this year, also contained the following remarks, "America is laying up for itself prosperous years ahead due to the fact that merchandise of all kinds is being worn out as never before and when the turn comes I predict there will be as great a panic among buyers as there has been in the past among many sellers."

McDarby, accompanied by Edward A. Stinson, famous flier and president of the Stinson Aircraft Corporation, and C. J. deGoveia public relations director for the P. P. Willis Corporation, is making his tour in a Stinson tri-motored Airliner.

"The use of an airplane is part of our program at Auburn," McDarby said, "to lengthen our hours and reduce costs of travel. We believe that business men generally will have to adopt the airplane as one method of meeting competition. The flight from Auburn, Ind., to New York is approxiimately five hours, with one stop at Pittsburgh. By train it is around 20 hours. This saving, when multiplied by a country-wide tour, totals days and enables the business man to greatly broaden his activities."

Stinson is making a survey of the aviation industry on the tour, possibilities of sales for 1931, and contacting Stinson dealers. The tour includes Pittsburgh, Philadelphia, New York city, Boston, Washington, Cincinnati, Kalamazoo, Chicago, Milwaukee, St. Louis, Kansas City, Denver, and West Coast cities.

Dealer Urges Car Makers To Ban Used Car Trading

(Continued from Page 1)

one way to guarantee this situation and that is as follows:

"1. To delegate authority where it belongs and that is with the respective factory from whom each dealer gets his cars. I believe every factory should take immediate steps to embody in their franchise the following clause: 'Be it understood and agreed between the parties of the first part and the parties of the second part that no used car shall be taken in exchange as part payment on the purchase price of the new car and that the party of the second part is not permitted to sell a current model or any other model automobile delivered to him by the party of the first part for any price below that price set down by the party of the first part through its authorized representative without the immediate cancellation of this franchise resulting as a penalty for infraction of this clause.'

"2. The rigid enforcement of this clause by the factories where trading, cut-pricing, rebating, etc., exists.

"3. That an accurate motor accounting system be installed as a compulsory measure with every dealer and compel said dealer to show where every cent of his money came from and where it went. A factory auditor who is a practical man to audit these books every quarter.

"4. This would completely divorce the new car dealer from the used car business and create a new business as a legitimate business, that of used car merchants who would buy for cash the used car that John Smith had either worn out or become tired of, at a price which would permit him to recondition same and sell t for at least 25 per cent. profit.

"This plan will have three major benefits. First, it will compel the dealer to make money, thereby strengthen the factory standing in every community; second, it will cause the buyer to purchase the car of his choice and not one on which he got $200 more for the old one; third, it will make used cars more stable and at the same time profitable.

"Now is the time to put this plan into effect as a national program because the number of new cars being delivered at present is extremely low and those that are being delivered are being done on long trades where the dealers make little or nothing and in many cases is only hastening the date when the factory will have to expend their time and money to try to replace said dealers after they have gone broke. This very seldom costs the factory less than five to twenty-five thousand dollars in real cash or in profit lost by the number of lost new car deals

"The biggest bunch of plain fools I know of in any business in the world are found in the automobile business and they will never be any different until the factories they represent compel them to be.

"This business is like the eighteenth amendment. We have tried it the way it is for twenty-five years or so and found it a complete flop. so why not put it on a fundamental business basis and bring the automobile dealer up out of the old horse trader class and make a respectable merchant out of him that you factory men can point to with pride and claim him as one of your organization.

"If these same dealers were working for the factory (anybody's factory) and used as little common sense there as they do in their own business, which by the way is still your business because they are your public contact units, you would fire them the first hour they were in your employ.

"We have tried long discounts and found the same fools gave it all away trading. We have seen short discounts prove a failure. We have seen every angle of the business tried and fail to keep the dealer prosperous or at least out of a pinch so why not try a life-saver now?

"Use the above divorce decree to abolish trading and rebating, give the dealer 40 per cent. discount on his cars and compel him to show every dollar turned over on every deal; build better automobiles and charge a fair price for them and let us get in a respectable business man's class and quit being thought of by the public as the only bunch of plain fools in any business. Go out and ask the public what their candid opinon is of the automobile dealers as a whole.

"No man can show me where a shrewd dealer can make money out of new car sales, let alone the common run in the business, when they have a gross profit of 25 per cent. or less to work on and have to handle trades. Not one can show a just earning on his investment if he will charge to new car sales all of the expense that rightfully belongs there. Any other commodity sold at retail by other merchants carries with it a 40 per cent. discount or better, and his overhead and operating expense is nowhere near the automobile dealer's, and he takes nothing in trade.

"You men are smart to know that, and at the same time you figure the dealer will do a good job for you as long as he can, and when he can't any more, then you are forced to look for another dealer. In my mind, this is very poor business, and does not contribute toward permanent organization.

"If something along this line or a similar line is not done pretty soon, factories can make cars all right, but they won't be able to find men with enough money to handle them who will be crazy enough to risk hteir money trying to sell them. I know you gentlemen are giving this used car problem some real thought, as well as the problem of trying to adjust your production to demands. The more you think of this plan the easier your problems and our problems will be, and the sooner it is put into practice the sooner we can say with a clear conscience, 'I SOLD MR. JONES AN AUTOMOBILE!' Today when a man tells me he sold a car he has to show me the deal before I believe he sold the car and didn't give it away.

"As I stated in the forepart of this letter, authority should be delegated where it belongs—TO THE FACTORIES.'

"We have tried dealer organizations, but they are generally a farce. There are fewer factories and more sensible men connected with them, all with the single thought, and that to make money; therefore they are the proper group to formulate a binding agreement to guarantee the fniancial success of each other and their dealer organizations. There is not a car made today that can't be sold on its merits if salesmanship has half a chance to enter into the transaction. Then why should any factory group hesitate to protect themselves by compelling their dealers to be prosperous, thereby assuring the factories of lower overhead and a constant organization. This is not a restraint of trade and in no way works a hardship on the public, but eliminates the hardship for the dealer and also the factories.

"I have thought enough about this problem and believe I am good enough to sell the factories on the idea if I only had half a chance, and that for the good of my competitors as well as myself.

(Signed)
"C. EDWARD BARNETT,
"A Dealer Who Woke Up."

GRAHAMS ORGANIZE CANADIAN COMPANY AT WALKERVILLE, ONT.

Walkerville, Ont., June 4.—At the organization meeting of Graham-Paige Motors (Canada), Ltd., a company newly chartered under the laws of Ontario for the manufacture of Graham motor cars in Canada, Joseph B. Graham, Robert C. Graham, Arthur Krueger, E. R. Harrell and W. R. Baldwin were elected directors.

The officers of the company are Joseph B. Graham, president; Robert C. Graham, vice-president; W. R. Baldwin, secretary and treasurer, and Arthur Krueger, managing director.

All the officers and directors have been associated with the Graham-Paige Motors Corporation, Detroit, except W. R. Baldwin, a resident of Toronto, who has been prominent in the Canadian automotive trade for many years, having served formerly as secretary and treasurer of Dodge Brothers (Canada), Ltd., Mr. Krueger having served for years as Canadian sales manager of the Detroit corporation.

The authorized capital stock of the new company is $150,000. A modern manufacturing plant has been acquired at Walkerville, and is now being equipped with machinery for the building of Graham cars.

N. A. C. C. ESTIMATES MAY PRODUCTION AT 338,307 UNITS

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compares with 352,867, and is a decrease of 4 per cent. It also compares with 444,699 in May, 1930. The decrease here is equal to 24 per cent. It may be noted that the decrease in May production this year under April was 4 per cent., while the decrease for May, 1930, under the month of April that year was 5 per cent.

Production during the first five months of 1931 totaled 1,388,665 units, which compares with 1,959,669 during the same period of last year. The decrease for May, 1931, under April works out at about 29 per cent.

CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS

SPARKS from DETROIT

Add Sturdy Oaks

* * *

Stocks Stack Up Well

* * *

Another Good Sales Job

* * *

Chris Sinsabaugh—Detroit Editor

WE feel like the snail which broke its thigh in its haste to cross the door sill, by which we mean that in the rush to catch the mail with the Curtis list of names of all American-made cars since the inception of the industry we overlooked the names of three of the pioneer concerns which belong in the "sturdy oaks" class of survivors—Pierce-Arrow, 1902; Marmon, 1903; Reo, 1904.

Amending the original list as it appeared in Sparks of May 29, the roll of honor of companies in production prior to 1905 should read as follows: Oldsmobile, 1897; Packard, 1899; Peerless, 1900; Cadillac, 1902; Franklin, 1902; Pierce-Arrow, 1902; Auburn, 1903; Marmon, 1903; Ford, 1903; Buick, 1904; Reo, 1904; Studebaker, 1904.

* * *

ASLEEP at the switch, it required a letter from Waldo Fellows, advertising manager of Pierce-Arrow, to make us realize our slip.

"Pierce-Arrow should have been mentioned in the group of concerns operating since 1904 or before," writes Fellows. "According to your own list, we have been in business since 1902. As a matter of fact, the first Pierce-Arrow, a two and three-quarter horsepower single-cylinder motorette, was actually built in 1901. Incidentally, this vehicle is now on display at our factory and is still in operating condition."

We're like the little boy who was spanked and put to bed without his supper.

* * *

W. D. EDENBURN, Detroit member of the A. A. A. contest board, has returned home, bringing with him interesting information as to the showing made in the 500-mile race at Indianapolis by cars that can be legitimately styled "near stock." Edenburn was in charge of the runnng of the classic.

Of the seventeen finishers, seven were in this division—Studebakers, Buicks, a Reo, Hudson, Chrysler Imperial, Whippet and a Cummins-Diesel. The last named is included because it is understood C. L. Cummins, encouraged by his showing, is going into production with the job under the name of the Cummins Engine Company of Columbus, Ind. Furthermore, a Studebaker, racing as a Hunt Special, might have won the classic. At the time of the accident to Billy Arnold, which put that leader out of the race, the Hunt Special was in second place and well ahead of Snyder, who won. Dodging Arnold, Tony Gullotta hit the wall and went out.

* * *

"SNOWBERGER, who finished fifth, had a Studebaker President eight engine in his own chassis," said Edenburn, fanning about the race. "The Jones-Miller Special, placed eighth, was powered with a Miller engine placed in a chassis that was mostly Whippet. In ninth place was the Elco Royale, otherwise a Reo, driven by Bergere, which landed ninth and which made only one stop, that for fuel.

"Tenth was the Marr Special, otherwise a Hudson, piloted by Chester Miller, while the G. N. H. Special, otherwise a Chrysler Imperial, was eleventh. The Shafer Eight Special was a 1931 Buick and was twelfth. The Diesel went through without a stop, got thirteenth place and used only thirty-one gallons of furnace oil.

"The Butcher Brothers Special also was a Buick, but it hit the hub rail in the seventh lap and went out. The Bill Ritchie Special was built by six Studebaker factory men on their own time and ran as a Romthe last year. This was the car which hit Billy Arnold and which was in sixth place at the time."

* * *

"WE read with interest in Sparks of a certain Detroit dealer selling a certain number of cars in a certain number of days," writes Ralph Jones, president of the Ralph Jones Buick Company of Wauseon, O. "Would the following statement of facts be interesting to you?

"We have sold 636 automobiles in the 1,460 days we have been in business in Wauseon, a village of about 2,800, with one salesman, the writer, and with nine other automobile dealers in the same village."

'Reward' to Service Men Sells Cars for This Dealer

Seattle Concern in Letter Appeals for Co-operation in the Industry in Bringing Back "Real Prosperity"

WHILE "a little of everything" has played a part in building sales of new cars for Nagelvoort-Stearns-Cadillac Company, Seattle, Wash., a letter to service station and garage operators offering a "reward" in the event of a sale being made to a name suggested by them as a prospect, has been the best single effort of recent months, according to Floris Nagelvoort, general manager and president.

In this letter, an appeal is made at the outset, for co-operation in

FLORIS NAGELVOORT

bringing back "real prosperity," and it is pointed out "the more people of our acquaintance we can each serve, the more business is opened up whereby we each can maintain our volume and profits." Then attention is called to the new and used car selling drive that has been organized by the firm; the division of the sales force into teams, and a direct offer for the garage or service station man to take part in the "rewards." This is on the following basis:

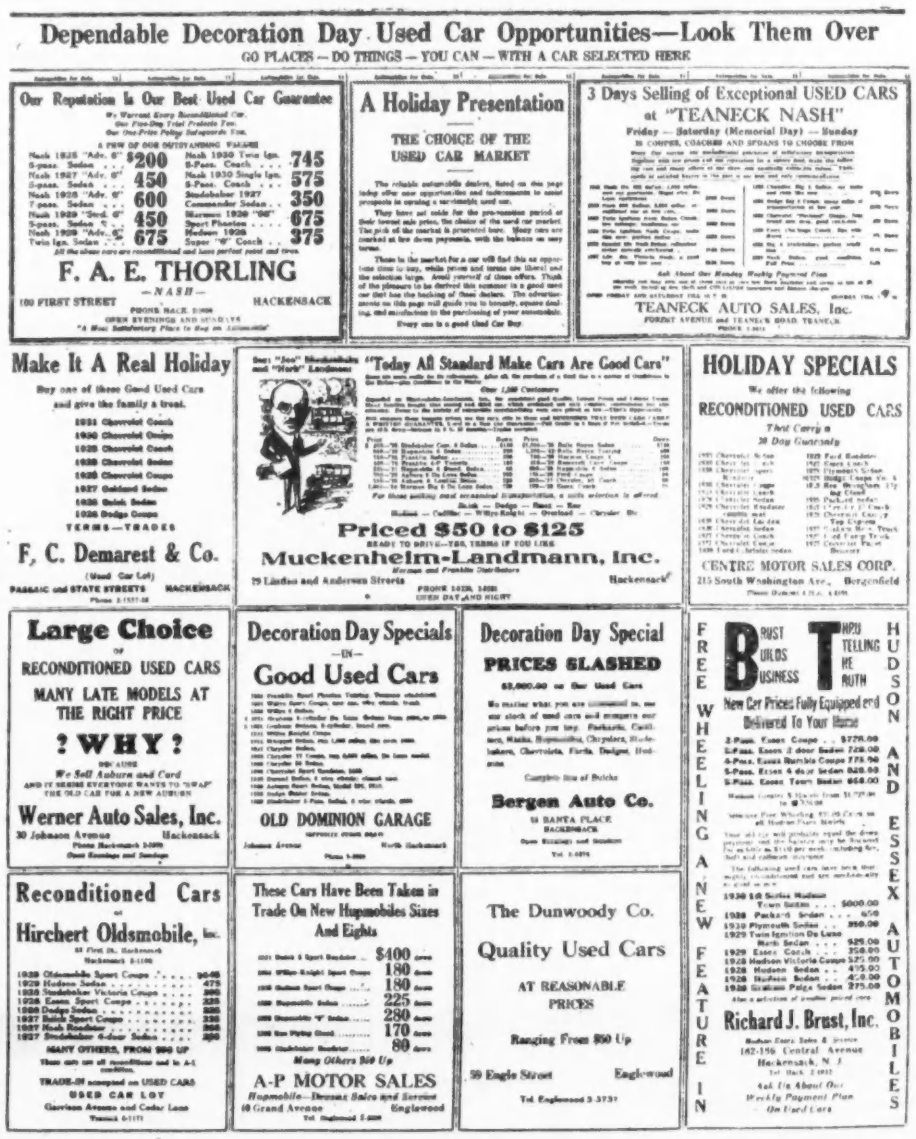
(1). For each name provided who is not a client or already being called upon by the firm's salesmen, who buys a car within thirty days, a minimum of $20 or 1 per cent. of the net volume of the sale will be given. (The net is the new delivered price less freight, handling and amount allowed for used car traded in.)

(2). The second offer is regarding used cars, and provides for a minimum of $5, or 2 per cent. of the net volume of the sale, if made within thirty days after name is proposed, and if name is not already on the prospect or clientele list.

"We are pleased with the results we have obtained from this plan," said Mr. Nagelvoort. "Many good prospects have been obtained and some good sales have been made."

With the letter sent to the garage or service man, was a self-addressed postcard, on the back of which was room for name of the prospect, address and phone number.

In closing his letter, Mr. Nagelvoort says: "Let's get together on this arrangement, it may lead to other mutual benefits. In unity there is strength — and extra profits."

Here's Pre-Holiday Ad That Sold Used Cars

Dependable Decoration Day Used Car Opportunities—Look Them Over

GO PLACES — DO THINGS — YOU CAN — WITH A CAR SELECTED HERE

Our Reputation Is Our Best Used Car Guarantee

F. A. E. THORLING — NASH — 100 FIRST STREET HACKENSACK

A Holiday Presentation — THE CHOICE OF THE USED CAR MARKET

3 Days Selling of Exceptional USED CARS at "TEANECK NASH" — Friday — Saturday (Memorial Day) — Sunday

TEANECK AUTO SALES, Inc.

Make It A Real Holiday

F. C. Demarest & Co.

"Today All Standard Make Cars Are Good Cars"

Priced $50 to $125

Muckenheim-Landmann, Inc.

HOLIDAY SPECIALS — RECONDITIONED USED CARS

CENTRE MOTOR SALES CORP.

Large Choice — RECONDITIONED USED CARS — MANY LATE MODELS AT THE RIGHT PRICE — ? WHY ?

Werner Auto Sales, Inc.

Decoration Day Specials — Good Used Cars

OLD DOMINION GARAGE

Decoration Day Special — PRICES SLASHED

Bergen Auto Co.

Reconditioned Cars

Hirchert Oldsmobile, Inc.

These Cars Have Been Taken in Trade On New Hupmobiles Sizes And Eights

A-P MOTOR SALES

The Dunwoody Co. — Quality Used Cars — AT REASONABLE PRICES

FREE WHEELING ANEW FEATURE IN HUDSON AND ESSEX AUTOMOBILES

Richard J. Brust, Inc.

BERGEN COUNTY automobile dealers report a big pre-holiday used car business with the co-operative full page advertisement, as reproduced above, and are planning a similar effort just before the Fourth of July. The ad was used in the classified display section and carried an eight-column head "'Dependable Decoration Day Used Car Opportunities—Look Them Over.' A subheading read "Go Places—Do Things—You Can With a Car Selected Here"

CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS

BLACK CLIMAXES 10-MONTH LEAD OF COLOR TREND

Detroit, June 4.—Black has climaxed ten months of leadership with a new peak, announces the Duco report on color trend issued yesterday. The continuation of black as a finish of high fashion for automotive use at the present time, coupled with the relatively low index recorded for black in the boom years of 1928 and 1929, would seem to indicate that prosperity breeds spontaneity in the use of color, Howard Ketcham, compiler of the trends, believes.

In this connection, he says, color appears as a sort of barometer, capable of giving expression to the spirit of the times. A return to business normalcy would seem to be the one expedient capable of successfully combatting the dismal, ubiquitous ennui which has so far invaded the mode.

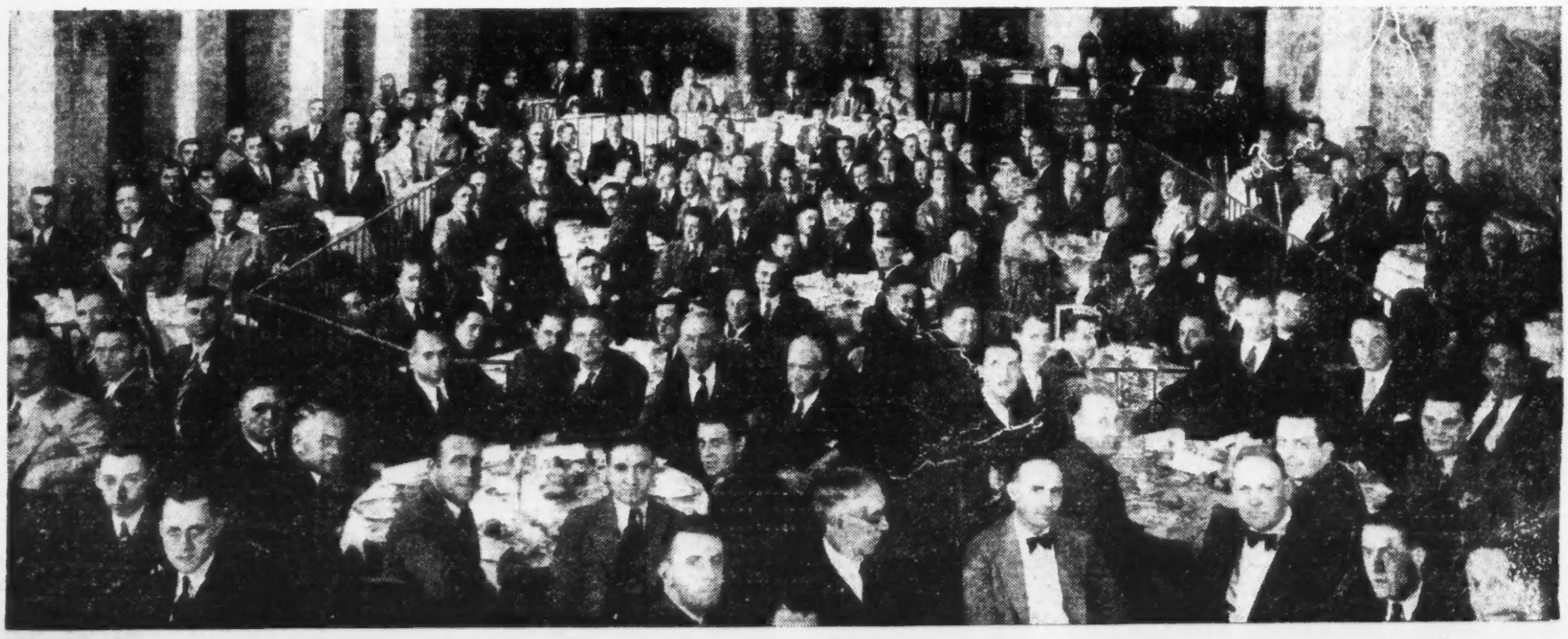
The demand for bright colored wire wheels and door saddles upon otherwise black cars may indicate that the public is preparing to champion gayly colored motor cars soon again, Ketcham figures. At any rate, this increasing use of color as an accent upon black cars is a trend worth watching.

"Blue is advancing once again," the report continues. "This is the sixth consecutive month of leadership for deep effulgent serge blue and bright, limpid boatswain blue. Commander, a light, clear, rich median blue with a slight reddish undertone, and Niagara, a dark, rich conservative greenish hue of blue, are the only two style colors to become fashion in this hue since last month.

"Green has declined to a new low position. The inclusion of highland, a dark, clear bluish hue of green; beech, a soft, light yellowish hue of green; and daphne, a clear, bright median green of yellowish hue in the group of green leaders, shows interest extant for a variety of tones in this hue. The green color family is noticeably lacking in outstanding individual leaders. Kewanee and Elk Point have been the greens that have appeared most consistently in the list of leaders to date.

"The demand for maroon has increased somewhat of late at the expense of brown. Royal, a deep, purple maroon, and state, a rich, red maroon, have gained prominence this month. Bright, clear boulevard has been the most consistently popular maroon, having appeared in the list of maroon leaders twenty-three times since May, 1929.

500 Auburn Dealers Gather at Park Central, New York



Automotive Daily News

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ADVERTISING AND BUSINESS HEADQUARTERS

Harry A. Tarantous, Business Manager. 350 Hudson St., New York, N. Y.
George M. Slocum, Manager Detroit Bureau, 427-8 Fisher Building, Detroit, Mich., phone Empire 3500; Willard R. Colton, Western Manager, 333 North Michigan Ave., Chicago, Ill., phone Central 5936; Metz B. Hayes, New England Manager, Little Building, Boston, Mass.; Blanchard, Nichols & Coleman, American National Bank Building, San Francisco, Cal.; Lincoln Building, Los Angeles, Cal.; 1037 Henry Building, Seattle, Wash. Address ALL advertising and business correspondence to 350 Hudson St., New York City.

EDITORIAL DEPARTMENT

350 Hudson St., New York, N. Y. Telephone CA nal 6-1000
Alexander Johnston, Editor. William C. Callahan, News Editor.
Statistical Department (registrations and specifications), P. J. Robas, statistician. C. J. Alexander, sales analyst. Engineering Department, A. Benson Carleton, technical editor; J. Russell Walsh, engineering editor. Merchandising Department, Charles S. Zack, editor. Art Department, John Bauersfeld, director.
Detroit Bureau, Chris Sinsabaugh, editor, 427-8 Fisher Building, Detroit, Mich. Telephone Empire 3500. Contributing editor, John C. Wetmore.

An Important Decision

IN the Supreme Court of Louisiana there was recently handed down a decision that has more than a little interest to automobile owners and incidentally to dealers. In this case the court reversed a previous decision and held that an automobile owner is liable to a guest passenger, in case the latter suffers injury when the owner is held to have operated the vehicle negligently.

In its previous decision the Louisiana court gave its opinion that the guest could not collect damages because he and the owner-driver of the car were engaged in a "joint enterprise." When the case came up for a rehearing, the court admitted that it had been in error in its first decision; that there could be "no joint adventure in the sense that an occupant of an automobile is equally liable with the driver, unless there be also an equal right to control the operation of the automobile."

This decision is important because there has been much litigation regarding the right of a passenger in a privately owned motor car to sue for damages if he is injured while a guest of the owner.

The only safe position for the car owner to assume is to carry liability insurance protecting him against damage suits by guests as well as outsiders. This is a bit of information that the automobile dealer should bring home to his clients.

Oil in Italy?

THERE appeared lately in the daily press a one-stick memorandum to the effect that European oil circles are much interested in the reported success of oil drilling operations in the province of Parma in Italy. The Department of Commerce says that prospects for the commercial production of oil in this Italian department are excellent.

If this report proves to be founded on fact the development is of real importance. The up-and-coming modern Italian nation has been severely handicapped in its industrial progress by the fact that its territory has hitherto yielded neither coal nor crude oil. It has possessed no home-produced source of industrial power, except water power. Give Italy a supply of home-produced crude oil and the industrial life of the nation will be immeasurably quickened.

We wonder if the eminent Duce himself stamped his mighty heel on this Parma oil field and ordered the forces of nature to quit their fooling and produce a little oil.

We Believe in Signs

W. S. KNUDSEN, president of Chevrolet, recently called attention to the fact that the Atlantic seaboard territory was showing signs of a definite revival of buying. He commented on the fact that this section of the country was first to register the depression in 1929 and expressed his belief that it was simply following the logical line by being the first district to give definite evidence of returning prosperity.

There are confirmatory evidences of reviving business along the Atlantic coastal strip. New England, for instance, was the only major manufacturing section to register an increase in plant productivity during the month of April. The boot and shoe industry in New England is beginning to show signs of life after a long dull period. Industry generally in this ancient industrial section is lifting up its eyes hopefully and looks for an advance all along the line in the early fall.

It would be foolish for any one to expect a general revival of activity during the summer months. These are normally the dullest period of the year in most lines of industry. It usually takes the movement of crops, with the release of money in the rural districts to start industry off again after the slackening of the summer period. We have been looking ahead to objectives lo these many months, but now we have real ground for hoping that the fall of 1931 will bring a revival in business that will be unmistakable.

Differential Discussions

IN this column Automotive Daily News is glad to present the opinions of its readers on topics related directly to the automotive industry. Automotive Daily News, however, must disclaim responsibility for such opinions. All questions regarding merchandising, technical problems or other information pertaining to automotive industry will be answered without charge in this column.

And Still They Come!

Automotive Daily News: I note that in your list of motor cars built in the United States since the industry began, that you have omitted the Houpt-Rockwell motor car which was built around 1910 in part of the New Departure Plant in Bristol.

Believe that you could get some concrete information about this car by writing to Mr. F. G. Hughes, vice-president of the New Departure Manufacturing Company, Bristol, Conn.

M. L. GEARING,
Division Manager the New Departure Manufacturing Co., Hartford, Conn.

—And More!

Automotive Daily News: In the May 29th issue of your publication we noted the Curtis list of car makers and your request for the names of any cars not shown.

For your information, the Klink Motor Car Company of Dansville, N. Y., manufactured a car known as the Klink from 1905 until 1908.

They had three models on show at the Grand Central Palace in 1907, but went out of business early the following year.

Should you desire any more information in regard to this job, it can be obtained from Mr. John Klink of Dansville, N. Y.

G. L. PICKARD, Sales Manager,
H. M. Pickard & Co.
Avoca, N. Y.

Defends Mr. Brisbane

Chris Sinsabaugh, Automotive Daily News: Being an enthusiastic reader of your daily since its inception and especially your editorial column, I have read with interest Mr. Stout's attack upon Mr. Brisbane's article.

Since Mr. Brisbane quoted accurately, as is proven by figures, I am inclosing a reply, which you may print if you see fit.

We don't have to give our foreign friends credit. They already have it in figures and print, and, in fairness to ourselves, let's not be misguided by false claims, but be enthused in an effort to build motors which will actually produce the goods when we compete with them.

L. E. HOWE,
Prop. Howe Motor Company,
Middletown, Conn.

COMING EVENTS

JUNE

4- 6—**Chicago, Ill.** Institute of Radio Engineers.
8-12—**Chicago, Ill.** Radio Manufacturers Association, annual show.
10-12—**Swampscott, Mass.** American Institute of Chemical Engineers' meeting.
14-19—**White Sulphur Springs, W. Va.** Society of Automotive Engineers, summer meeting.
15-18—**Madison, Wis.** American Society of Mechanical Engineers, fourth national oil and gas power meeting.
17-19—**French Lick, Ind.** Steel Founders Society, mid-summer meeting.
21—**Montlery Track, France.** Automobile Club of France, grand prize race.
22-26—**Chicago, Ill.** American Society for Testing Materials, thirty-fourth annual meeting.
22-27—**Boston, Mass.** National Association of Credit Men, convention.
29-30—**Chicago, Ill.** National Association of Taxicab Owners, meeting.

JULY

4—**Altoona, Pa.** Automobile race.
19—**Nurburg-Ring, Rhineland, Germany.** Automobile Club of Germany, grand prize race

SEPTEMBER

1- 3—**Cleveland, O.** Hotel Statler, Society of Automotive Engineers, twentieth annual aeronautical meeting in conjunction with National Air races.
8-17—**Utrecht, Holland.** Utrecht Fair, bus and truck show.
16-17—**Atlantic City, N. J.** National Petroleum Association, annual meeting, Hotel Traymore.
20-26—**Springfield, Mass.** Eastern States Exposition.
21-25—**Boston, Mass.** American Welding Society, meeting.
28-29—**Atlantic City, N. J.** National Association of Motor Bus Operators, fifth annual meeting, Hotel Ambassador.
26-Oct. 2—**Atlantic City, N. J.** American Electric Railway Association, annual meeting.

OCTOBER

1-11—**Paris, France.** International Automobile Salon.
2- 3—**Houston, Tex.** American Institute of Mining and Metallurgical Engineers, petroleum division meeting.

"Your recent articles by Arthur Brisbane and William B. Stout have been interesting. Mr. Stout's explanation as to our commercial airplane efficiency is true and full credit should be given this modest engineer for his attempt to have our commercial planes superior. No doubt Mr. Stout, with good intentions, refers to this complex about everything foreign being superior just because it is foreign, and he is justified in condemning any such thought, but the substance of his article would convey to any reader that, after all, our own airplanes, motor boats and autos are superior to anything foreign. Now, since the word foreign is only relative as between various countries, I am wondering if we are not foreign to any other country, and, according to Mr. Stout's statement, superior to any of them.

"Let us see if Mr. Brisbane's article, stating the fact that the British hold the airplane, auto and motor boat records, is 'far from actualities.' Has any other nation exceeded these records? Not that we have heard of. On the contrary, we did hear one of our most capable motor boat men, who holds the American speedboat record, mention the superiority of a foreign motor and indicate that he might import one in order to increase his speed. In the airplane field we could not get going fast enough to even be a contender in the Schneider trophy, which is an international event, and the Navy Department did not even bother about shipping it over. On land, we are nearly forty miles an hour slower than the British.

"Since Mr. Stout states that foreign production is handmade, inaccurate and of tremendous maintenance requirements, we then might wonder, even though the short speed records are held by foreign countries, why it is that they also hold a majority of all world class records and all the world records for endurance from 500 miles up to 30,000 miles. Since we are licked in both speed and endurance by other nations, let us face the facts and not attempt to substitute patriotism for cold figures."

Scores Brisbane Theory

Chris Sinsabaugh, Automotive Daily News: As a rule, I have nothing but approval for your column, even for the many kind things you say about our many competitors.

In your "Sparks" of May 27, however, it seems to me that you missed one of the best answers to Mr. Brisbane's laudation of British automotive engineering.

I call your attention to the fact that four Studebaker Presidents, all strictly stock cars, selected at random from our assembly lines by officials of the American Automobile Association, were placed on the board track at Atlantic City and traveled 30,000 miles in less than that number of minutes. The leading roadster maintained an average speed of 68.4 miles per hour for eighteen days and nineteen nights, completing the 30,000 miles in 26,326 consecutive minutes. The second roadster finished only three minutes behind, and the slower of the two sedans averaged 63.99 miles per hour for the distance.

The fastest thousand miles of each roadster was the last. Think of it! AFTER 29,000 miles, one President traveled 1,000 miles at 71.67 and the other at 69.65 miles per hour.

Even after establishing such amazing world's records these strictly stock cars were ready for scores of thousands of miles of touring and record-smashing hill climbing.

Could any hand-built British racing car even approximate these records or those previously set when stock Commanders completed 25,000 miles in less than 25,000 consecutive minutes?

J. M. CLEARY, Sales Manager.
The Studebaker Corporation of America, South Bend, Ind.

RUSCO TO HANDLE TRU-STOP BRAKE REPLACEMENT SALES

(Continued from Page 1)

Manufacturing Company for the Tru-Stop emergency brake lining segments. This brake is used by a number of the larger bus and truck manufacturers, being standard equipment on more than seventy models.

Under the new arrangements the Russell Manufacturing Company will have complete charge of the national replacement sales. Rusco will stock a complete line of replacement parts for this brake in all seven of its branches. Through these branches these parts will be supplied to jobbers, service stations and the fleet trade. Rusco will also appoint authorized service stations in the Tru-Stop brake and these will act as service agents in supplying parts, service and complete new units to fleet owners. These service stations will be supplied with an authorized service sign, and Rusco sales representatives will co-operate in the creating of service business.

Particular attention will be given to the handling of fleet business not only as regards service, but also for equipping vehicles already in service with the Tru-Stop emergency brake.

G. M., STUDEBAKER AND PACKARD SUE 3 PARTS MAKERS

(Continued from Page 1)

Manufacturing Company and the Pick Manufacturing Company, West Bend, and the Westbar Corporation, Barton.

Each of the complainants asks that injunctions be issued to prevent further alleged infringement; that accountings be authorized and the defendant companies be required to pay over all profits from allegedly illegal sales and that the United States marshal be empowered to seize in the plants all dies used in manufacture and supplies of finished and unfinished hub caps.

The General Motors Corporation declares it owns copyrights on hub cap designs for Chevrolet, Oldsmobile, Buick, Oakland, Pontiac, Marquette, Viking, Cadillac and La Salle cars. The complaint declares that the Standard company manufactured spurious hub caps for these cars and "palmed off" the parts on jobbers, dealers and garages as genuine General Motors parts. General Motors maintains that it has spent millions advertising the various trade marks and declares the purchasing public is being defrauded into purchase of spurious articels.

CHRYSLER EXPORT CHIEF SEES GOOD MARKETS ABROAD

(Continued from Page 1)

ognition of the economies and other benefits of motor transportation.

The Scandinavian countries and Holland, Belgium and Luxembourg, he believes, offer the greatest opportunities as potential markets for American auto exporters.

An improvement in the attitude of the people of Switzerland and Jugo-Slavia toward American motor vehicles is manifesting itself in increasing sales, according to Mr. Mitchell.

With the prospects of an expanding market in Europe, American car manufacturers should give attention to the preservation and development of their export merchandising outlets, he said.

SCHNEIDER · 1ST
FRAME · · · 2ND
HEPBURN · 3RD

in the Indianapolis 500-mile race

RODE GABRIELS

Here's what they say . . .

"Better control . . . Easier steering . . .
"Not so tired . . . Saved the car" . . .

The Shock Absorbers that stand the gaff in such a grind will *perform* on *any car, anywhere.*

THE GABRIEL COMPANY, CLEVELAND, OHIO.

AUTHORIZED SERVICE STATIONS EVERYWHERE

GABRIEL SHOCK ABSORBERS
with automatic adjustment

VALUE UNEQUALED FOR TRUCK BUYERS

Most buyers of Motor Trucks are adequately equipped by reason of their experience, to specify certain qualifications for their trucks.

BROCKWAY - INDIANA'S principle of design, manufacture and assembly solves the Truck Buyer's problems and permits him to match his Transportation units to the job; no penalty in time or money because his requirements demand specialized equipment.

BROCKWAY-INDIANA TRUCKS

BROCKWAY MOTOR TRUCK CORP.,
Cortland - - - - New York

CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS

DEALER NEW CAR STOCKS PLACED AT 306,000 UNITS

(Continued from Page 1)

emphasized the success the industry has enjoyed this year in its efforts to hold production down to actual consumption. With preliminary figures coming in for May, it appears likely that some further reduction of dealers stocks took place during that month.

Even a slight increase for May, however, would not have been alarming. As long as inventories remain close to the 300,000 level, the dealers will be in a strong position.

As to inventories of used cars, it is estimated that the total on April 1 was only slightly below that of the beginning of the year, when the holdings were placed at approximately 800,000. In the meantime, the total is estimated to have stood at about 808,500 as of February 1, 805,500 as of March 1 and around 800,000 as of April 1. A slight decline is believed to have occurred in April, but the reports from various parts of the country have been conflicting.

Used car stocks currently are estimated at 4 to 5 per cent. below normal, whereas a year ago at this time they were placed at 25 to 30 per cent. above normal. The inventories a year ago were well above the 1,000,000 mark, according to the most reliable statistics available.

Following are the estimated dealer inventories of new cars for the various months of 1929, 1930 and January, February, March, April and May, 1931. Totals are as of the first day of each month:

	1931.	1930.	1929.
January	298,000	424,000	310,000
February	292,000	450,000	340,000
March	312,000	494,000	425,000
April	320,000	475,000	460,000
May	306,000	438,000	500,000
June	—	417,000	538,000
July	—	390,000	544,000
August	—	344,000	497,000
September	—	361,000	532,000
October	—	341,000	525,000
November	—	305,000	486,000
December	—	290,000	450,000

HIS WINDOWS, USED TO BEST ADVANTAGE, BRING IN BUSINESS

Seattle, Wash., June 4.—Empire Motors, Dodge dealer in Seattle, has in one of its large show windows a car, balanced at an angle of 47 degrees, with placards near it reading: "What greater proof of safety? Tires are 42 inches off the ground. Dodge will not upset."

"This car and the signs we display have brought many prospects," said A. B. McConnell, manager. "People want to see what is holding the car up."

This firm is also making a strong bid for used car sales. The window of that section is "plastered" with signs, giving prices on certain models and also calling attention to "bargains."

HUDSON LAUNCHES JUNE SALES DRIVE; AIM AT APRIL MARK

(Continued from Page 1)

tion of Hudson and Essex cars equipped with selective free wheeling.

Mr. McAneeny has repeatedly told the sales force that the rehabilitation of the country's business is primarily in the hands of the automobile salesman, inasmuch as 10 per cent. of the population is dependent upon the industry for support.

"If the automobile salesman sells cars, that creates employment; employed men earn money to spend and buy cars. That is the beginning and end of the cycle. Increased activity, particularly in demonstration, will bring the desired results," Mr. McAneeny has advocated.

Cumulative New Commercial Car Registration Statistics, May, 1931

Returns for today: North Dakota and South Carolina

States	Autocar	Brockway-Indiana	Chevrolet	Diamond-T	Dodge	Essex	FWD	Fargo	Federal	Ford	G. M. C.	International	La France-Republic	Mack	Paige	Relay	Reo	Rugby	Sterling	Stewart	Studebaker	Whippet	White	Willys	Willys-Knight	Miscellaneous	Totals	States
Illinois	3	5	429	36	71			1	3	641	18	137		13		3	6		5	1	26		1	14	1	39	1452	**Illinois**
Nor. Dak.		1	73		16					82	5	76					1				5		1	3			263	**Nor. Dak.**
So. Caro.			125		3					151	1	9	1	1			1				3					2	297	**S. Carolina**
Totals	3	6	627	36	90			1	3	874	24	222	1	14		3	8		5	1	34		1	17	1	41	2012	**Totals**
Ill., 1930	4	11	661	71	61			12	4	911	36	135		18	3	2	19	1	2	5		13	12	15		78	2074	**Ill., 1930**
N. D., '30			86	6	7			5		113	7	68					11	1				1		2	1	3	311	**N. D., 1930**
S. C., '30		1	134		1					188	4	5		1			1				2	1	1			1	340	**S. C., 1930**
Totals	4	12	881	77	69			17	4	1212	47	208		19	3	2	31	2	2	5	2	15	13	17	1	82	2725	**Totals**

Cumulative New Commercial Car Registration Statistics, April, 1931

Figures in this table are from R. L. Polk & Co. of Detroit, with the exception of Illinois, which are supplied by the Robinson Advertising Service, Springfield, Ill., and New Jersey, which are furnished by the New Jersey Motor List Co., New Car Division, Trenton, N. J. Some of this data has been published previously, but it is given here complete for the convenience of our subscribers. Readers desiring county, city or town lists, or lists of owners in any given section, may obtain these by addressing any of these three companies. Commercial car registrations do not include busses. Comparative figures for April, 1930, will be found on Page 7. In this table are 44 states and the District of Columbia.

States	Autocar	Brockway-Indiana	Chevrolet	Diamond-T	Dodge	Essex	FWD	Fargo	Federal	Ford	G. M. C.	International	La France-Republic	Mack	Paige	Relay	Reo	Rugby	Sterling	Stewart	Studebaker	Whippet	White	Willys	Willys-Knight	Miscellaneous	Totals	States
Alabama			183		2				3	194	10	43					2				1		1			1	440	**Alabama**
Arizona			29		1					73		3					1										107	**Arizona**
Arkansas		1	98		12					146	2	48					5				1		2				315	**Arkansas**
Calif.	10	2	464	3	103		1	2	9	1270	23	63	2	11	1		39	2	15	7	27	1	22	2		58	2137	**California**
Conn.	3	7	168	4	45				9	337	14	25	1	17		1	23		1	10	10		4	7		8	694	**Conn.**
Delaware	4		35		1					78		9		2			1			1	2						133	**Delaware**
Florida			144		6					259	2	13					2						1			1	428	**Florida**
Georgia		5	136		12				3	254	8	46	1	7									6	2			480	**Georgia**
Idaho			56		10					74	1	8		1			4	1			1		2	2		1	161	**Idaho**
Illinois	2	10	513	33	77			1	16	816	23	121	1	10			7		8	3	32		1	19	4	78	1775	**Illinois**
Indiana		11	404	5	65	1		2	1	518	35	96		2		6	18		3	9	17		1	15	9	11	1229	**Indiana**
Iowa		12	426	5	47		1	1	2	473	8	131		1			16	3			20	1	3	13		1	1164	**Iowa**
Kentucky	1	6	167	2	18				1	182	6	31		1			3				7		4	7	1	3	440	**Kentucky**
Maine	1		354		60	1				465	11	13		12			6			3	23		4	7			960	**Maine**
Maryland	4	2	176	8	24			1	2	245	13	45		13			7				7	2	8	3		3	563	**Maryland**
Mass.	18	7	336	6	76				15	948	43	77		34	3		24		18	6	15		26	3		54	1709	**Mass.**
Michigan	4		333	6	47	1			9	755	27	49	3	4		1	10	2	1		13	1	2	13		10	1291	**Michigan**
Minn.			385	16	40		2		3	437	15	84	13	4	1	1	9	1			12	1	6	23		7	1060	**Minn.**
Miss.			84		5					147	1	16	1				2						1	1			258	**Miss.**
Missouri		7	480	11	41	1			5	465	18	74		2	3	2	6	2	5		3		2	10	1	36	1174	**Missouri**
Montana			58		8			1		107	1	26					1						2	2		4	210	**Montana**
Nebraska			207	4	11				2	235	4	58						1			10		1	10	1	1	545	**Nebraska**
Nevada			15		2					53	3	3		5			1	1								1	84	**Nevada**
N. Hamp.		2	101	6	8					185	4	6	1	4			6	1		5	4			2		1	336	**N. Hamp.**
N. Jersey	12	3	363	7	83			1	5	708	33	57	1	39		1	11		9	8	5		10	9	1	35	1401	**N. Jersey**
N. Mexico			60		4					75	1	8									1		2			2	153	**N. Mexico**
New York	50	74	929	59	195	1	1	3	17	2006	76	248	5	85	3	6	46	5	16	70	31	5	34	36	3	68	4072	**New York**
Nor. Car.			245		21					281	9	44	4	3	1		2				5	1	2	1		3	622	**Nor. Car.**
Nor. Dak.			87		14					92	1	46					7	1			2	1		3			254	**N. Dakota**
Ohio	4	8	501	9	77			1	4	894	36	114		12	3	6	11	6	3	14	29		26	25		64	1847	**Ohio**
Oregon	1		102		16				2	202	4	17	1	3			4	1	1		1		1			10	366	**Oregon**
Penna.	26	43	654	7	174	2	2	2	9	1124	45	131	8	42	3	10	26	2	16	25	32	3	23	32		23	2464	**Penna.**
Rho. Isl.	2	2	45		12				2	134	3	9		2			4		1				2	1			219	**Rh. Island**
Sou. Car.		2	186		11				1	150		6									1		1			7	365	**S. Carolina**
S. Dakota			79	6	10		1			57	1	30					2				7	2		3			198	**S. Dakota**
Tennessee		2	238	1	21				4	185	8	37		1			3				4		4	3	1	1	513	**Tennessee**
Texas	1	2	597	6	27	1	1		9	662	14	139		5		1	9				3		6	3	1	11	1498	**Texas**
Utah			69		5					100	4	11		1	1		3				1					6	201	**Utah**
Vermont		1	58		11					123	3	21					2							4			223	**Vermont**
Virginia		4	257	1	22				2	260	9	22	5	10		2					2	1	3	5		13	618	**Virginia**
Wash'ton			116		13	1			3	258	5	31		2		1	7				12		2	1		25	477	**Wash'ton**
West Va.	2	1	148		21				1	209	18	26	3				3			1	1			6		4	444	**West Va.**
Wisconsin			374	21	22	1	1		7	384	14	54	1	1		3	6		6	4	16	1	3	9	1	16	945	**Wisconsin**
Wyoming			49		12					55	3	13					2				3					1	138	**Wyoming**
D. of C.	10	1	33	4	12				2	147	9	16	1	4		1	2		1		1		4			5	253	**Dis. of Col.**
Totals	155	215	10542	230	1504	10	10	15	148	16822	568	2168	52	340	19	42	343	29	104	166	362	20	222	282	23	573	34964	**Totals**

Combined report: American La France and La France Republic.

Delivering Oils and Gasoline Profitably

With summer and its accompanying incease in demand for automobile lubricants and fuels well on its way, the following survey on "Delivering Oils and Gasoline Profitably," which was compiled by the General Motors Truck Company, Pontiac, Mich., should be of particular interest. The full text of the report covering the facts brought out during the survey is appearing serially in Automotive Daily News. The report in pamphlet form is also available at all General Motors Truck Company dealers and distributorships.

THE distributor of petroleum products who desires to lower his delivery costs will do well to apply the three basic rules of sound truck transportation, given in the preceding installment, to the management and operation of his present trucks as the first step toward more economical and profitable operation.

And, since profitable operation of trucks depends to a great extent on profitable use of time, it is well to start with a careful time analysis of present truck schedules.

The Cost of Idle Time

A truck that is idle or loafing on the job is not producing profits. To be sure, a truck which is standing idle is not running up operating expense, but the fixed costs of operating the truck are still present. Investment cost, insurance, taxes, garage rent and licenses are always present, whether or not the truck is in operation. Moreover, a careful study of idle truck time will usually show that the driver is idle or loafing when his truck is idle.

THE VALUE OF TRUCK TIME

Based on typical figures for a three and one-half ton tank truck, the fixed expenses of operation for one year are as follows:

Depreciation (25% each per year)	**$1,080.00**
Interest on investment	**210.00**
Garage rent	**120.00**
Property tax	**11.00**
Licenses	**105.00**
Insurance	**212.00**
Total fixed costs	**$1,738.00**
Fixed costs per day (300 working days)	**$ 5.79**
Driver's wages per day	**5.50**
Fixed cost plus wages per day)	**$ 11.29**
Cost per hour of idle time (on basis of 10-hour day)	**$ 1.13**

As the accompanying chart shows, it is these fixed expenses of truck operation which must be watched if deliveries are to be handled profitably. If we assume that the driver is idle when his truck is idle—as he is in most instances except when the truck is in the shop for major repairs—these fixed expenses make up 80 per cent. to 90 per cent. of the total operating cost of each truck. Repairs, maintenance, fuel and oil—the running expenses incurred only when the truck is in operation—seldom exceed 15 per cent. of the total cost of operation.

Looking at the value of time from this angle, idle time and delays in a fleet of trucks can mount up to staggering losses over a very short period of time. For example, the chart on Typical Time Study shows the time record during January, February and March of 1930, for a fleet of trucks operated by an oil distributor in the Middle West. The result is astounding. Thirty-four per cent. of the available working time for the fleet was lost during these three months. And yet this distributor's operation is fairly typical of that of many other distributors throughout the country.

Study of these time losses, both for this distributor and for many others, indicates that they arise at three distinct sources:

1. In the repair shop.
2. At the bulk station.
3. On the route.

(To Be Continued)

A TYPICAL TIME STUDY

(Covering three months)

Truck No.	Total Hours Operated	Hours of Idle Time	Idle Time
1	429	196	46%
2	527	88	17%
3	468	158	34%
4	407	123	30%
5	458	174	38%
6	539	103	19%
7	320	285	89%
8	512	121	24%
Fleet	**3,660**	**1,248**	**34%**

SNAP-ON SPOKES USED TO DRESS UP CARS IN DEALER DISPLAYS

New York, June 4.—Motor car dealers and distributors in metropolitan New York are using the new stainless steel snap spokes to improve the appearance of cars in the show rooms, according to officials of Wheels, Incorporated, distributors for this new Budd Wheel Company product.

"Today's automobile buyer is attracted by the appearance of the product to an extent greater than ever before," these officials pointed out. "Dealers tell us that they are using every effort to 'dress up' their show room exhibits. Not only do the new stainless steel snap spokes lend much to the appearance of the cars, but many dealers are selling snap spoke sets to new car buyers."

Budd officials, in surveying the retail sales end of the automotive business, have noticed a decided trend toward improving show room appearances. Their distributors for the new snap spokes in various sections of the country have found the retail sales company anxious to add in every way to the appearance of the cars they display. Sales of snap spokes made by retailers are seen as a reflection of this policy.

GETS BUS EXTENSION

Trenton, N. J., June 4.—The Rollo Transit Corporation was given permission by the Public Utilities Commission today to extend its Freneau-Keansburg bus route into Ideal Beach, Middletown township, during summer months.

CLASSIFIED ADVERTISEMENTS IN THE AUTOMOTIVE DAILY NEWS BRING RESULTS

NEW ACCURATE WAREHOUSE

Los Angeles, June 4.—Accurate Parts Manufacturing Company has established a Los Angeles warehouse at 244 West 15th St., according to Al Marsh, Pacific Coast manager.

Craftsmanship in Wisconsin Axles is focused on just one thing—maximum trouble-free service; on any road, under any load.

WISCONSIN AXLES

WISCONSIN AXLE CO.
Oshkosh Wisconsin

Cumulative New Commercial Car Registration Statistics, April, 1930

This table is repeated for comparative purposes only. April, 1931, figures will be found on Page 6.

States	Autocar	Brockway-Indiana	Chevrolet	Diamond-T	Dodge	Essex	FWD	Fargo	Federal	Ford	G. M. C.	International	La France-Republic	Mack	Paige	Relay	Reo	Rugby	Sterling	Stewart	Studebaker	Whippet	White	Willys	Willys-Knight	Miscellaneous	Totals	States
Ala., 1930			280		10			1	2	197	6	17	2	3	1		3				1	1	3	3			530	Ala., 1930
Ariz., '30			51		11			2		80	3	7					2			1			1	1	1	3	163	Ariz., 1930
Ark., 1930			156		6				1	214	9	30		2			4						7	1		1	431	Ark., 1930
Cal., 1930			634	1	130	2	2	3	14	1511	78	80	26	35	1		123	10	23	8	17	5	31	4	2	132	2872	Cal., 1930
Conn., '30	8	12	173	8	59	2		6	5	325	28	41		35	6		36	1	3	15	2	5	6	4	2	18	800	Conn., '30
Del., 1930	5	4	46		1			1		64	6	9	1				6						1			1	145	Del., 1930
Fla., 1930		2	122		9					230	7	10		1			4					1	6				392	Fla., 1930
Ga., 1930		5	147		2				5	252	8	8		3	1		2				2	3	7	1			446	Ga., 1930
Idaho, '30			67		9					123	7	17					4					1		1	1		230	Idaho, '30
Ill., 1930	8	20	663	54	72	2		9	19	932	41	111	1	17	3	2	26	2	5	7		14	12	13	1	79	2113	Ill., 1930
Ind., 1930		22	307	8	39	2		4	2	484	54	68		1	1	4	17			9	1	1	1	10	2	8	1045	Ind., 1930
Ia., 1930			480	2	39	3		4	3	506	12	343		1			22	1			1	3	5	25	2	2	1354	Iowa, 1930
Ky., 1930		2	225	2	19			1		283	18	41	1	5		2	5	1			3	2		4	1	10	625	Ky., 1930
Me., 1930	2	12	309	3	38	3		4		422	10	23		4	1		13		2		3	4	1	12	3		869	Me., 1930
Md., 1930	19	12	218	8	29	1	2	3	2	312	25	62	2	22	1	1	24	1	1	3	1	2	25	2	1	11	790	Md., 1930
Mass., '30	29	34	317	21	102	10		14	10	905	78	87	1	59	3		58		24	19	3	6	35	2	1	31	1849	Mass., '30
Mich., '30	3	2	502	10	35	5		6	20	1119	59	97	7	2	10		38	4			1	9	12	8		19	1968	Mich., '30
Minn., '30		9	560	11	60	1		3	4	765	28	129		9			32				4	10	12	16	3	3	1659	Minn., '30
Miss., '30		1	330		19					329	6	25					5					3	1	2		2	723	Miss., '30
Mo., 1930		13	653	15	50	1		5	11	803	35	97		6	3	1	11	2	3	4	9	5	4	14	7	21	1773	Mo., 1930
Mont., '30			66		3			4		95	5	29		2			3					1	5	4	1	3	221	Mont., '30
Neb., 1930		1	249	4	16			1		310	15	51			1		7				1	3	1	11	1	3	675	Neb., 1930
Nev., 1930			11		2					23		1										1			1	2	41	Nev., 1930
N. H., '30		9	114	6	7					188	8	12	1	8			18		1	5	2		1	1			381	N. H., 1930
N. J., '30	19	18	348	17	97	8		6	10	788	59	41	1	38	9	2	31	2	9	5	7	7	18		2	42	1584	N. J., '30
N. M., '30			30		3					47	3										1						84	N. M., '30
N. Y., '30	39	189	1041	62	215	24	2	15	33	2081	168	235	3	150	9	18	108	2	26	117	8	15	82	18	10	93	4763	N. Y., 1930
N. C., '30			277		21					251	13	26	1	4			4	1				2	2	5		5	612	N. C., 1930
N. D., '30			112	1	9			1		144	2	77		1	1		11	1						11	2		373	N. D., 1930
Ohio, '30	16	30	651	7	96	6	1	9	13	1214	81	159		21	5	5	48	4	11	22	9	36	48	36	11	72	2611	Ohio, 1930
Ore., '30	2		121		10		7	1	9	310	14	16	1	5			5	3	4			2	7			8	525	Ore., 1930
Penn., '30	54	59	721	16	138	7		15	28	1455	100	190	4	84	9	16	60	5	15	68	6	18	49	25	5	54	3201	Penna., '30
R. I., 1930	1	2	60		15			1	10	126	18	10		6	1		3		1	1	3		1			2	261	R. I., 1930
S. C., '30			166		3			1	4	139	3	5		1			1						5	1		1	330	S. C., 1930
S. D., '30			79	1	9		1	2		90	2	44	1	2			12	1				3		6			253	S. D., '30
Tenn., '30		4	262	2	16				15	242	25	43	2	7			4				1	2	5	2			632	Tenn., '30
Texas, '30	1	4	895	1	41	1		10	1	929	30	146	1	12	3	2	43	1		2	2	8	15	9	1	6	2164	Texas, '30
Utah, '30			80		11	2	1			144	2	22		2			3				1					3	271	Utah, 1930
Vt., 1930		8	58	3	8			2	1	141	3	18		1			10			4		3	1	1		1	263	Vt., 1930
Va., 1930	4	6	422		24				4	396	20	31	7			1	9			7	1		12	6	1	1	952	Va., 1930
Wash., '30	1		152		18			3	6	411	29	25	1	2	1		3	3	4		2		18	1	1	42	723	Wash., '30
W. V., '30		3	205	4	34	1				245	17	44	1	1	1	1	15			2		2		3	1	6	586	W. V., '30
Wis., 1930		3	568	29	36	1	7	3	7	807	32	124		2	2	6	31	2	15	7	2	9	6	9	1	14	1723	Wis., 1930
Wyo., '30			18		2					49		4											1				74	Wyo., 1930
D. C., '30	5		17	2	3				1	85	13	1		1								1	6			1	136	D. C., '30
Totals	216	486	12963	298	1576	82	23	140	240	20566	1180	2556	65	555	73	61	864	47	147	306	94	188	453	272	65	700	44216	**Totals**

Major Specifications and Mechanical Details of 1931 Commercial Cars

Make and Model	Capacity—Tons or Lbs.	Chassis Price	Engine	Valve Arr'g'm't	No. of Cyls.	Bore and Stroke	Piston Disp.	Tax H. P.	Max. Brake H. P. and Peak R. P. M.	Type Camshaft Drive	Radiator Make	Clutch Make	Universals Make	Steering Gear Make	Carburetor Make	Fuel Feed Type	Make Electr'l System	Make Transmission	No. Spds. For.	Rear Axle Make	Type Final Drive	Final Gear Reduction	Type Service Brakes	Area Service Brakes	Standard Wheel Base	Chassis Wgt.	Standard Tire Sizes Front	Standard Tire Sizes Rear
*Am La France Chief	2½	3650	Own	L	6	3¾x5	331.0	33.7	65@2100	G	G & O	Borg	Spic	Ross	Str	Vac	DR	Own	4	Tim	Wo	31.2	B4IM	—	156	6200	32x6	32x6D
*Am. La France Chieftain	3-4	5500	Own	L	6	4¼x5½	411.0	40.8	75@1800	G	G & O	Borg	Spic	Ross	Zen	Vac	DR	Own	4	Tim	Wo	28.8	B4IM	—	175	7200	36x8S	36x8D
Am. La France Big Chief	6	6725	Own	—	6	4½x6	——	48.6	50@1200	—	—	—	—	——	Zen	Vac	DR	Own	4	Own	2 R	32.8	——	—	226	10630	40x8S	40x8SD
Austin	400	475	Own	L	4	2.2x3	45.6	7.8	13@3000	G	Hex	Rock	Spic	Own	Til	Gra	Aut	W-G	3	Sal	Sp	5.25	O4M	76.5	75	1210	3.75x18	3.75x18
Autocar A	1½-2	3200	Own	L	6	4 x4¾	358.0	38.4	82@2400	G	Per	Long	Spic	Ross	Str	Vac	DR	Br-L	4	Own	Sp	27.9	LO4ID	460	150	5060	34x7	34x7
Autocar D	2-2½	3500	Own	L	6	4 x4¾	358.0	38.4	82@2400	G	Per	Long	Spic	Ross	Str	Vac	DR	Br-L	4	Own	2 R	33.5	LO4ID	460	150	5200	34x7	34x7D
†Autocar SH	2½-3	4300	Own	L	6	4¼x4¾	404.0	43.4	92@2400	G	Own	Long	Spic	Ross	Str	Gra	DR	Own	4	Own	2 R	44.0	O2IM	328	114	6770	34x7	34x7D
Autocar SCH	2½-3	4300	Own	L	6	4¼x4¾	404.0	43.4	92@2400	G	Own	Long	Spic	Ross	Str	Vac	DR	Own	4	Own	2 R	44.0	O2IM	328	157	6860	34x7	34x7D
†Autocar H	3	4100	Own	L	4	4½x5½	350.0	32.4	45@1450	G	Own	Long	Spic	Ross	Str	Gra	DR	Own	4	Own	2 R	48.6	O2IM	328	114	6770	34x7	34x7D
†Autocar HS	3½	4600	Own	L	4	4½x5½	350.0	32.4	45@1450	G	Own	Long	Spic	Ross	Str	Gra	DR	Own	4	Own	2 R	54.3	O2IM	516	114	7900	40x8	40x8D
†Autocar SHS	3-3½	4800	Own	L	6	4¼x4¾	404.0	43.4	92@2400	G	Own	Long	Spic	Ross	Str	Gra	DR	Own	4	Own	2 R	54.3	O2IM	516	157	8180	40x8	40x8D
Autocar SCH2	3-3½	4800	Own	L	6	4¼x4¾	404.0	43.4	92@2400	G	Own	Long	Spic	Ross	Str	Vac	DR	Own	4	Own	2 R	41.2	OL4IH	574	174	7900	36x8	36x8D
Autocar N	3-3½	4600	Own	L	6	4¼x4¾	404.0	43.4	92@2400	G	Own	Long	Spic	Ross	Str	Vac	DR	Own	12	Own	2 R	101.1	LO4ID	602	192	9300	36x8	36x8D
Autocar TEA	3-3½	5350	Own	L	6	4¼x4¾	404.0	43.4	92@2400	G	Own	Long	Spic	Ross	Str	Vac	DR	Own	12	Own	2 R	101.3	LO4ID	602	192	9300	38x9	38x9D
Autocar TFA	3½-5	6100	Own	L	6	4½x5½	453.0	48.6	101@2400	G	Own	Long	Spic	Ross	Str	Vac	DR	Own	4	Own	2 R	51.7	O2IM	516	172	9500	42x9	42x9D
Autocar C	3½-5	5500	Own	L	6	4½x5½	453.0	48.6	101@2400	G	Own	Br-L	Spic	Ross	Str	Vac	DR	Br-L	7	Tim	Wo	94.0	LT4DV	674	173	11000	36x7S	40x8SD
Autocar F	7½	6800	Own	L	6	4½x5½	453.0	48.6	101@2400	G	Own	Br-L	Spic	Ross	Str	Vac	DR	Br-L	7	Tim	Wo	100.0	T6IA	720	171	13000	36x8	36x8D
*Autocar G	10	9000	Own	L	6	4½x5½	453.0	48.6	101@2400	G	Own	Br-L	Spic	Ross	Str	Vac	DR	Br-L	7	Tim	Wo	100.0	T6IA	720	171	13000	36x8	36x8D
Autocar NA	22000	4600	Own	L	6	4¼x4¾	404.0	43.4	92@2400	G	—	—	Spic	——	Str	Vac	DR	—	4	Own	2 R	54.3	OL4IH	574	174	7990	36x8	36x8D
Autocar NB	22000	4700	Own	L	6	4¼x4¾	404.0	43.4	92@2400	G	—	—	Spic	——	Str	Vac	DR	—	4	Own	2 R	54.3	OL4IH	574	192	8160	36x8	36x8D
Autocar NC	22000	4850	Own	L	6	4¼x4¾	404.0	43.4	92@2400	G	—	—	Spic	——	Str	Vac	DR	—	4	Own	2 R	54.3	OL4IH	574	218	8320	36x8	36x8D
Autocar ND	22000	4950	Own	L	6	4¼x4¾	404.0	43.4	92@2400	G	—	—	Spic	——	Str	Vac	DR	—	4	Own	2 R	54.3	OL4IH	574	242	8480	36x8	36x8D
Brockway 60	*6000	995	Con	L	6	3¾x4	214.7	27.3	61@3000	C	G & O	Borg	Spic	Ross	Zen	P	Aut	W-G	3	Col	Sp	19.8	B4IM	297	132	3200	30x5	30x5
Brockway 65	6500	1195	Con	L	6	3¾x4¾	248.2	27.3	65@2700	C	G & O	Borg	Spic	Ross	Zen	Vac	Aut	Br-L	3	Col	Sp	21.3	C4IM	244	137	3400	30x5	30x5
Brockway 75	7500	1290	Con	L	6	3¾x4⅝	248.2	27.3	65@2700	C	G & O	Borg	Spic	Ross	Zen	Vac	Aut	Br-L	4	Col	Sp	25.6	C4IM	244	137	3450	32x6	32x6
Brockway 90	9000	1525	Con	L	6	3¾x4⅝	248.2	27.3	65@2700	C	G & O	Borg	Spic	Ross	Zen	Vac	Aut	Br-L	4	Col	Sp	20.9	C4IM	292	149	4050	32x6	32x6
Brockway 120	12000	1990	Con	H	6	4 x4⅛	311.0	38.4	73@2400	C	G & O	Br-L	Spic	Ross	Zen	P	Aut	Br-L	4	Tim	Sp	31.3	L4IH	353	156	5200	32x6	32x6D
Brockway 140	14000	2495	Con	H	6	4 x4⅛	311.0	38.4	73@2400	C	G & G	Br-L	Spic	Ross	Zen	P	Aut	Br-L	4	Wis	2 R	35.3	L4IHV	356	156	5500	32x6	32x6D
Brockway 141	17000	2935	Con	H	6	4 x4⅛	311.0	38.4	73@2400	C	G & O	Br-L	Spic	Ross	Zen	P	Aut	Br-L	4	Wis	2 R	46.2	L4IHV	356	170	6200	32x6	32x6D
Brockway 142	17000	3160	Con	H	6	4¼x4¾	380.9	40.8	89@2400	C	G & O	Br-L	Spic	Ross	Zen	P	Aut	Br-L	4	Wis	2 R	46.6	L4IHV	380	170	6800	32x6	32x6D
Brockway 170	17000	3160	Con	H	6	4¾x4¾	427.5	45.9	100@2400	C	G & O	—	Spic	Ross	Zen	P	Aut	—	5	Wis	2 R	45.3	L4IHV	380	170	7200	34x7	34x7D
Brockway 175	17500	3660	Con	H	6	4¼x4¾	380.9	40.8	89@2400	C	G & O	Br-L	Spic	Ross	Zen	P	Aut	Br-L	4	Wis	2 R	49.5	L4IHV	471	170	7500	34x7	34x7D
Brockway 195	19500	3820	Con	H	6	4¼x4¾	380.9	40.8	89@2400	C	Long	Borg	Spic	Ross	Zen	P	Aut	Br-L	7	Tim	Wo	78.6	T2IMV	471	168½	7625	34x7	34x7D
Brockway 190	19000	4185	Con	H	6	4¼x4¾	380.9	40.8	89@2400	C	G & O	Br-L	Spic	Ross	Zen	P	Aut	Br-L	4	Wis	2 R	50.7	L4IHV	546	170	8200	36x8	36x8D
Brockway 220	22000	4560	Con	H	6	4¾x4¾	427.5	45.9	100@2400	C	Long	Br-L	Spic	Ross	Zen	P	Aut	Br-L	4	Tim	Wo	63.7	LT4IVA	664	182	10000	40x8	40x8D
Brockway 250	25000	5950	Con	H	6	4¾x4¾	427.5	45.9	100@2400	C	Long	Br-L	Spic	Ross	Zen	P	Aut	Br-L	4	Tim	Wo	95.0	T4IA	676	182	10750	38x7P	40x14S
Brockway 290	30000	7250	Con	L	6	4¾x5¾	611.4	54.1	116@1800	C	Long	Br-L	Spic	Ross	Str	P	L-N	Br-L	7	Tim	Wo	95.0	T4IA	676	182	10750	38x7P	40x14S
*Brockway 640	40000	9700	Con	L	6	4¾x5¾	611.4	54.1	116@1800	C	Long	Br-L	Spic	Ross	Str	P	L-N	Br-L	7	Tim	Wo	90.9	T4IA	864	212	14000	33x7P	36x10S
Chevrolet	½	355	Own	H	6	3⅛x3¾	194.0	26.3	50@2600	G	Har	Own	Own	Own	Car	P	DR	Own	3	Own	Sp	13.6	O4IM	101	109	1880	19x4.75	19x4.75
Chevrolet	1½	590	Own	H	6	3⅛x3¾	194.0	26.3	50@2600	G	Har	Own	Own	Own	Car	P	DR	Own	4	Own	Sp	33.4	O4IM	170	157	3015	30x5	30x5D
Chevrolet	1½	520	Own	H	6	3⅛x3¾	194.0	26.3	50@2600	G	Har	Own	Own	Own	Car	P	DR	Own	4	Own	Sp	33.4	——	—	131	2700	30x5	32x6
Commerce Series S 11	1	1600	Bud	L	6	3⅜x4½	241.6	27.3	53@2200	G	Long	Br-L	Blo	Han	Zen	Vac	Aut	Br-L	4	Col	Sp	25.5	L4IH	297	142	3900	30x5P	30x5P
Commerce Series S 11	1½	1900	Bud	L	6	3⅜x4½	241.6	27.3	53@2200	G	Long	Br-L	Blo	Han	Zen	Vac	Aut	Br-L	4	Tim	Sp	29.2	L4IH	297	162	4300	30x5P	30x5DP
Commerce Series 40	1½	2990	Bud	L	6	3⅜x5	309.6	31.5	64@2100	G	Long	Br-L	Blo	Own	Zen	Vac	Aut	Br-L	4	Tim	Wo	34.8	L4IH	394	168	4700	34x5P	34x5DP
Commerce Series S 11	2	2030	Bud	L	6	3⅜x4½	241.6	27.3	53@2200	G	Long	Br-L	Blo	Han	Zen	Vac	Aut	Br-L	4	Tim	Sp	29.2	L4IH	297	162	4500	32x6	32x6D
Commerce Series 40	2	3240	Bud	L	6	3⅜x5	309.6	31.5	64@2100	G	Long	Br-L	Blo	Han	Zen	Vac	Aut	Br-L	4	Tim	Wo	34.8	L4IH	394	168	4900	32x6	32x6D
Commerce Series 40	2½	3240	Bud	L	6	3⅜x5	309.6	31.5	64@2100	G	Long	Br-L	Blo	Han	Zen	Vac	Aut	Br-L	4	Tim	Wo	34.8	L4IH	394	168	5100	36x6P	36x6D
Commerce Series 60	2½	4580	Bud	L	6	4⅛x5⅛	410.9	40.8	83@2100	G	Long	Ful	Blo	Han	Zen	Vac	Aut	Ful	5	Tim	Wo	63.0	L4IH	584	175	7000	36x6P	36x6D
Commerce Series 60	3	4680	Bud	L	6	4⅛x5⅛	410.9	40.8	83@2100	G	Long	Ful	Blo	Han	Zen	Vac	Aut	Ful	5	Tim	Wo	63.0	L4IH	584	175	7100	36x6P	38x7D
Commerce Series 80	3½	5250	Bud	L	6	4⅛x5⅛	411.0	40.8	83@2100	G	Long	Own	Blo	Ross	Zen	Vac	Aut	Br-L	7	Tim	Wo	98.2	——	—	175	8200	36x6S	36x12S
Commerce Series 80	4	5330	Bud	L	6	4⅛x5⅛	411.0	40.8	83@2100	G	Long	Own	Blo	Ross	Zen	Vac	Aut	Br-L	7	Tim	Wo	98.2	——	—	175	8400	36x6S	36x14S
Commerce Series 100	5	5830	Bud	L	6	4⅛x5⅛	411.0	40.3	83@2100	G	Long	Own	Blo	Ross	Zen	Vac	Aut	Br-L	7	Tim	Wo	95.0	——	—	175	9600	36x6S	40x14S
Day Elder 60	1	1095	Con	L	6	3¾x4	214.7	27.3	61@3000	C	G & O	Borg	Spic	Ross	Zen	P	DR	W-G	4	Tim	Sp	36.3	B4IM	241	135	3200	20x6.00B	20x6.50B
Day Elder 85	1½	1645	Con	L	6	3¾x4⅝	248.3	27.3	65@2700	C	Per	Borg	Spic	Ross	Zen	P	DR	W-G	4	Tim	Sp	42.3	L4IH	229	135	3750	20x6.00B	20x6.50DB
Day Elder 110	2	2095	Con	L	6	3¾x4⅝	248.3	27.3	65@2700	C	Per	Br-L	Spic	Ross	Zen	P	DR	Br-L	4	Tim	Sp	44.9	L4IH	306	156	4600	20x7.00B	20x7.00DB
Day Elder 130	2½	2395	Con	H	6	4 x4⅛	311.0	38.4	73@2400	C	Per	Br-L	Spic	Ross	Zen	P	DR	Br-L	4	Tim	Sp	40.7	L4IH	354	150	6400	20x7.50B	20x7.50DB
Day Elder 160	3	3695	Con	H	6	4 x4½	339.3	38.4	82@2400	C	Per	Br-L	Spic	Ross	Zen	P	DR	Br-L	4	Tim	Wo	56.1	L4IH	398	156	6600	20x7.50B	20x9.00DB
Day Elder 200	4	4295	Con	H	6	4 x4½	339.3	38.4	82@2400	C	Per	Br-L	Spic	Ross	Zen	P	DR	Br-L	4	Tim	Wo	43.5	L4IHV	489	156	7400	20x9.00B	20x9.00B
Day Elder 240	5	5500	Con	H	6	4¾x4¾	427.5	45.9	100@2600	C	Per	Br-L	Blo	Ross	Zen	Vac	DR	Br-L	7	Tim	Wo	50.8	L4IHV	520	162	9300	38x9P	38x9DP
*Day Elder 285	8	6000	Con	H	6	4¾x4¾	427.5	45.9	100@2600	C	Per	Br-L	Blo	Ross	Zen	Vac	DR	Br-L	7	Tim	Wo	71.2	L6IHV	674	164	12000	20x8.25B	20x8.25DB
*Day Elder 345	10	7500	Con	H	6	4¾x4¾	427.5	45.9	100@2600	C	Per	Br-L	Blo	Ross	Zen	Vac	DR	Br-L	7	Tim	Wo	79.9	T4rIA	490	164	12500	20x9.00B	20x9.00DB
*Day Elder 402	12	9000	Con	L	6	4¾x5½	611.4	51.2	127@2300	G	Per	Br-L	Blo	Ross	Zen	P	DR	Br-L	7	Tim	Wo	84.6	T4rIA	490	164	14000	20x9.75B	20x9.75DB
Diamond T 216	1½	635	Her	L	6	3⅜x4¼	228.0	27.3	55@2400	G	G & O	Borg	Spic	Ross	Zen	P	Aut	W-G	4	Cla	Sp	——	L4IH	252	135½	3130	20x6.50B	20x6.50B
Diamond T 291	1½-2	1325	Her	L	6	3½x4½	268.0	29.4	60@2400	G	G & O	Borg	Spic	Ross	Zen	P	Aut	Cov	4	Cla	Sp	——	L4IH	279	156½	4500	20x6.50B	20x6.50DB
Diamond T 303	2-2½	1585	Her	L	6	3¾x4½	298.0	33.7	67@2400	G	G & O	Borg	Spic	Ross	Zen	P	Aut	Cov	4	Tim	Sp	——	L4IHV	350	159¾	5000	20x7.00B	20x7.00DB
Diamond T 551	2½-3	2050	Her	L	6	4 x4½	339.0	38.4	74@2400	G	G & O	Cov	Spic	Ross	Zen	P	Aut	Cov	4	Wis	2 R	——	L4IHV	408	176½	6400	20x8.25B	20x8.25DB
Diamond T 504	3	2375	Her	L	6	4 x4½	339.0	38.4	74@2400	G	G & O	Cov	Spic	Ross	Zen	P	Aut	Cov	5	Wis	2 R	——	L4IHV	408	184	6400	20x8.25B	20x8.25DB
Diamond T 506	3	2675	Her	L	6	4¼x4¾	383.0	43.3	85@2200	G	G & O	Cov	Spic	Ross	Zen	P	Aut	Cov	5	Wis	2 R	——	L4IHV	499	169	7500	20x9.00B	20x9.00DB
Diamond T 603	3-4	2975	Her	L	6	4¾x4¾	428.4	45.9	94@2200	G	G & O	Cov	Spic	Ross	Zen	P	Aut	Cov	5	Wis	2 R	——	L4IHV	499	187½	7500	20x9.00B	20x9.00DB
Diamond T 606	3-4	3075	Her	L	6	4½x4¾	453.0	48.6	100@2200	G	G & O	Cov	Spic	Ross	Zen	P	Aut	Cov	5	Wis	2 R	——	W41	552	178	8300	22x9.75B	22x9.75DB
Diamond T 750	4-5	4100	Her	L	6	4¾x5¼	529.0	51.3	——	G	G & O	Cov	Spic	Ross	Zen	P	Aut	Br-L	7	Own	Wo	——	L6IHV	571	189½	8300	36x8P	36x8DP
*Diamond T 891	4	4140	Her	L	6	4¾x4¾	428.4	45.9	94@2200	G	G & O	Cov	Spic	Ross	Zen	P	Aut	Br-L	7	Tim	Wo	——	T4IA	238	190	11000	34x7P	34x7DP
*Diamond T 1200	6	5600	Her	L	6	4½x4¾	453.3	48.6	100@2200	G	G & O	Cov	Spic-Blo	Ross	Zen	P	Aut	Br-L	7	Tim	Wo	——	T4IA	238	190	11700	36x8P	36x8DP
*Diamond T 1600	8	6220	Her	L	6	4¾x4¾	479.0	51.3	104@2400	G	G & O	Cov	Spic-Blo	Ross	Zen	P	Aut	Br-L	7	Tim	Wo	——	T4IA	238	194	12500	36x8P	36x8D?
*Diamond T 1601	8	7500	Wak	L	6	5 x5½	677.4	60.0	127@2000	G	G & O	Br-L	Spic-Blo	Ross	Zen	P	Aut	Br-L	7	Tim	Wo	——	T4IA	238	194	12500	36x8P	36x8D?
Dodge Bros. F 10	½	515	Own	L	6	3¼x4¼	196.0	21.0	48@2800	G	Fed	Borg	Own	W-G	Car	P	DR	Own	3	Own	Sp	14.2	L4IH	114	109	1925	19x5.00	19x5.00
Dodge Bros. F 10	½	695	Own	L	4	3¼x4¼	211.5	25.3	66@3200	G	Fed	Borg	Un	W-G	Car	P	DR	Own	3	Own	Sp	14.2	L4IH	114	109	1975	19x5.25	19x5.25
Dodge Bros. U I	¾	435	Own	L	4	3⅜x4¾	196.0	21.0	45@2800	G	Fed	Borg	Spic	Han	Car	Vac	NE	Own	3	Own	Sp	21.6	L4IH	189	124	2260	20x5.50B	20x5 50B
Dodge Bros. DA 1	¾	795	Own	L	6	3⅜x3⅞	208.0	27.3	63@3200	G	Fed	Borg	Spic	Han	Zen	Vac	NE	Own	4	Own	Sp	36.8	L4IH	189	124	2360	20x5.50	20x5.50
Dodge Bros.	1	795	Own	L	4	3¾x4¼	196.0	21.0	45@2800	G	Fed	Borg	Spic	Han	Car	Vac	NE	Own	3	Own	Sp	36.1	L4IH	205	133	2590	20x6.00	32x6
Dodge Bros.	1	895	Own	L	6	3⅜x3⅞	208.0	27.3	63@3200	G	Fed	Borg	Spic	Han	Zen	Vac	NE	Own	3	Own	Sp	33.4	L4IH	205	133	2690	20x6.00	32x6
Dodge Bros. UF 30	1½	595	Own	L	4	3⅜x4¾	196.0	21.0	48@2800	G	Fed	Borg	Cle	W-G	Car	P	DR	Own	4	Own	Sp	37.1	L4IH	120	136	2581	20x6.00	32x6
Dodge Bros. UF 31	1½	670	Own	L	4	3⅜x4¾	196.0	21.0	48@2800	G	Fed	Borg	Cle	W-G	Car	P	DR	Own	4	Own	Sp	37.1	L4IH	229	165	2757	20x6.00	32x6
Dodge Bros. F 31	1½	770	Own	L	6	3¼x4¼	211.5	23.4	66@3200	G	Fed	Borg	Cle	W-G	Car	P	DR	Own	4	Own	Sp	37.1	L4IH	229	165	2697	20x6.00	32x6
Dodge Bros. F 30	1½	695	Own	L	6	3¼x4¼	211.5	25.3	66@3200	G	Fed	Borg	Cle	W-G	Car	P	DR	Own	4	Own	Sp	37.1	L4IH	120	136	2631	20x6.00	32x6
Dodge Bros. F 35	1½	1425	Own	L	6	3⅜x3⅞	208.0	27.3	63@3200	G	Long	Borg	Cle	Han	Zen	P	DR	Own	4	Own	Sp	41.4	L4IH	311	140	3780	20x6.00	20x6.00D
Dodge Bros. F 36	1½	1485	Own	L	6	3⅜x3⅞	208.0	27.3	63@3200	G	Long	Borg	Cle	Han	Zen	P	DR	Own	4	Own	Sp	41.4	L4IH	311	165	3972	20x6.00	20x6.00D
*Dodge Bros. F 40	2	1995	Own	L	6	3⅜x5	309.6	31.5	95@3000	G	Long	Borg	Cle	Sag	DL	P	DR	Own	4	Own	Sp	43.7	L4IH	350	150	5173	20x6.50	20x6.50D
*Dodge Bros. F 41	2	2085	Own	L	6	3⅜x5	309.6	31.5	96@3000	G	Long	Borg	Cle	Sag	DL	P	DR	Own	4	Own	Sp	43.7	L4IH	350	165	5211	20x6.50	20x6.50D
Dodge Bros.	3	1845	Own	L	6	3⅜x4½	241.0	27.3	73@3000	C	Long	Borg	Un	Han	Zen	Vac	NE	Own	4	Own	Sp	46.3	L4IH	382	135	4235	32x6	32x6D
Dodge Bros.	3	1895	Own	L	6	3⅜x4½	241.0	27.3	78@3000	C	Long	Borg	Un	Han	Zen	Vac	NE	Own	4	Own	Sp	41.4	L4IH	382	165	4520	32x6	32x6D
Dodge Bros.	3	1945	Own	L	6	3⅜x4½	241.0	27.3	78@3000	C	Long	Borg	Un	Han	Zen	Vac	NE	Own	4	Own	Sp	46.3	L4IH	382	185	4715	32x6	32x6D
Dodge Bros. F 60	3	2645	Own	L	6	3⅜x5	309.6	31.5	96@3000	G	Long	Borg	Cle	Sag	DL	P	DR	Own	4	Own	2 R	48.8	L4IH	416	146	5543	32x6	32x6D
*Dodge Bros. F 61	3	2575	Own	L	6	3⅜x5	309.6	31.5	96@3000	G	Long	Borg	Cle	Sag	DL	P	DR	Own	4	Own	Sp	48.8	L4IH	416	170	5789	32x6	32x6D
*Dodge Bros. F 62	3	2695	Own	L	6	3⅜x5	309.6	31.5	95@3000	G	Long	Borg	Cle	Sag	DL	P	DR	Own	4	Own	Sp	48.8	L4IH	416	195	5901	32x6	32x6D
Essex Com.	¾	445	Own	—	6	2⅜x4½	——	18.2	—	—	—	—	——	——	Mar	Vac	Aut	Own	3	Own	So	17.8	——	—	110	1930	30x5	31x5.50
Federal D	1½	795	Con	L	4	3⅞x4¼	200.5	24.0	48@2500	C	Long	Borg	Spic	Gem	Zen	P	DR	W-G	4	Cla	Sp	40.8	L4IH	377	131	3280	20x6.00	32x6
Federal E 6	1½	895	Con	L	6	3⅜x4	215.0	27.3	60@2600	C	Long	Borg	Spic	Gem	Zen	P	DR	W-G	4	Cla	Sp	34.6	L4IH	377	132	3330	20x6.00	32x6
Federal F 7	1½	1525	Con	L	6	3⅜x4⅝	248.0	27.3	64@2500	C	Long	Borg	Spic	Gem	Zen	P	DR	Own	4	Tim	Sp	29.2	L4IH	414	132	3819	30x5	30x5D
Federal A 6	2	1855	Con	L	6	3⅜x4⅝	248.0	27.3	64@2500	C	Long	Borg	Pet	Ross	Zen	Vac	DR	Own	4	Cla	Sp	38.5	L4IH	450	151	4635	32x6	32x6D
Federal A 6 T	2½	2185	Con	L	6	3⅜x4⅝	248.0	27.3	64@2500	C	Long	Borg	Pet	Ross	Zen	Vac	DR	Own	4	Tim	Sp	41.3	L4IHV	659	151	5185	32x6	32x6D
Federal A 6 T W	2½	2360	Con	L	6	3⅜x4⅝	248.0	27.3	64@2500	C	Long	Borg	Pet	Ross	Zen	Vac	DR	Own	4	Tim	Wo	42.0	L4IHV	659	151	5185	32x6	32x6D
*Federal D S W	2½-3	1050	Con	L	4	3⅞x4¼	200.5	24.0	45@2500	C	Long	Borg	Spic	Gem	Zen	P	DR	W-G	4	Cla	Sp	40.8	L6IH	566	140	3980	20x6.00	32x6
*Federal E 6 S W	2½-3	1150	Con	L	6	3⅜x4	215.0	27.3	60@2600	C	Long	Borg	Spic	Gem	Zen	P	DR	W-G	4	Cla	Sp	40.8	L6IH	566	145	4030	20x6.00	32x6
Federal T 10 B	2½-3	2740	Con	H	6	4 x4⅛	311.0	38.4	75@2200	C	Long	Borg	Pet	Ross	Zen	P	DR	Own	4	Tim	Sp	44.5	L4IHV	659	165	6645	34x7	34x7D
Federal T 10 W	2½-3	2915	Con	H	6	4 x4⅛	311.0	38.4	75@2200	C	Long	Borg	Pet	Ross	Zen	P	DR	Own	4	Tim	Wo	44.0	L4IHV	659	165	6645	34x7	34x7D
Federal T 10 D R	2½-3	2915	Con	H	6	4 x4⅛	311.0	38.4	75@2200	C	Long	Borg	Pet	Ross	Zen	P	DR	Own	4	Tim	2 R	45.6	L4IHV	659	165	6645	34x7	34x7D
Federal U 6	3-3½	3360	Con	H	6	4 x4½	339.0	38.4	85@2200	C	Long	Borg	Pet	Ross	Str	P	DR	Br-L	7	Tim	Wo	64.6	L4IHV	676	165	7315	34x7	34x7D
Federal U 6 D R	3-3½	3860	Con	H	6	4 x4½	339.0	38.4	85@2200	C	Long	Borg	Pet	Ross	Str	P	DR	Br-L	7	Tim	2 R	69.6	L4IHV	767	165	7315	34x7	34x7D
Federal 4 C 6 A	4-5	4735	Con	H	6	4¼x4¾	381.0	40.8	90@2200	C	Long	Borg	Pet	Ross	Zen	P	DR	Br-L	7	Tim	Wo	72.2	L4IHV	894	192	8460	36x8	36x8D
Federal 4 C 6 A D R	4-5	4735	Con	H	6	4¼x4¾	381.0	40.8	90@2200	C	Long	Borg	Pet	Ross	Zen	P	DR	Br-L	7	Tim	2 R	80.6	L4IHV	894	192	8460	36x8	36x8D
Federal 4 C 6 A B	4-5	4960	Con	H	6	4¼x4¾	381.0	40.8	90@2200	C	Long	Borg	Pet	Ross	Zen	P	DR	Br-L	7	Tim	Wo	72.2	T4IA	921	192	8980	36x8	36x8D
Feder

Major Specifications and Mechanical Details of 1931 Commercial Cars

(CONTINUED FROM PAGE EIGHT)

Make and Model	Capacity—Tons or Lbs.	Chassis Price	Engine	Valve Arr'g'm't	No. of Cyls.	Bore and Stroke	Piston Disp.	Tax H. P.	Max. Brake H. P. and Peak R. P. M.	Type Camshaft Drive	Radiator Make	Clutch Make	Universals Make	Steering Gear Make	Carburetor Make	Fuel Feed Type	Make Electr'l System	Make Transmission	No. Spds. For.	Rear Axle Make	Type Final Drive	Final Gear Reduction	Type Service Brakes	Area Service Brakes	Standard Wheel F...	Chassis Wgt.	Standard Tire Sizes Front	Rear
General Motors T 42	*15000	1845	Buick	H	6	3¾x4⅝	257.5	28.3	76@2500	G	Long	Own	Spic	Sag	Mar	P	DR	Mun	4	Eat	Sp	33.4	54IM	524	141	4725	32x6P	32x6DP
General Motors T-44	*16000	2095	Buick	H	6	3¾x4⅝	257.5	28.3	76@2500	G	Long	Own	Spic	Sag	Mar	P	DR	Mun	4	Eat	2 R	40.9	B4IM	524	141	5005	34x7P	34x7DP
General Motors T-51	*19000	2565	Own	H	6	3¾x5	331.4	33.7	94@2500	G	Long	Own	Spic	Sag	Mar	P	DR	Mun	4	Eat	Sp	40 6	B4IM	574	155	5955	34x7P	34x7DP
General Motors T-55	*19000	2690	Own	H	6	3¾x5	331.4	33.7	94@2500	G	Long	Own	Spic	Sag	Mar	P	DR	Mun	4	Eat	2 R	50.8	B4IM	574	155	6095	34x7P	34x7DP
General Motors T-60	*22000	3035	Buick	H	6	3¾x5	331.4	33.7	94@2500	G	Long	Own	Spic	Sag	Mar	P	DR	Mun	4	Tim	Wo	52.5	B4IM	685	154	[illegible]	34x7P	34x7DP
General Motors T-61	*22000	3445	Own	H	6	3¾x5	331.4	33.7	94@2500	G	Long	Own	Spic	Sag	Str	P	DR	Mun	4	Tim	Wo	52.5	B4IMV	685	154		20x9.00B	20x9.00DB
General Motors T-82	*24000	3795	Own	H	6	3¾x5	331.4	33.7	94@2500	G	Long	Own	Pet	Sag	Str	P	DR	Mun	12	Tim	Wo	143.0	B4IM	793	155		20x9.00B	20x9.00DB
General Motors T-83	*24000	3990	Own	H	6	3¾x5	331.4	33.7	94@2500	G	Long	Own	Spic	Sag	Str	P	Dr	Mun	12	Tim	Wo	143.0	B4IMV	865	155	[illegible]	20x9.00B	20x9.00DB
General Motors T-85	*26000	5600	Own	H	6	4¼x5½	468.0	43.3	115@2200	C	Long	Own	Spic	Sag	Str	P	DR	Ful	4	Tim	2 R	53.3	B4IMV	865	171	10630	20x9.75B	20x9.75DB
†General Motors T-90	*28000	5285	Own	H	6	3¾x5	331.4	33.7	94@2500	G	Long	Own	Pet	Sag	Str	P	DR	Mun	12	Tim	Wo	129.0	BrIA	868	185	9400	20x7.50B	20x7.50DB
†General Motors T-95	*34000	7545	Own	H	6	4¼x5½	468.0	43.3	115@2200	C	Long	Own	Spic	Sag	Str	P	DR	Ful	4	Tim	Wo	53.3	B6IA	1191	189	13250	34x7P	34x7DP
†General Motors T-96	*34000	7195	Own	H	6	4¼x5½	468.0	43.3	115@2200	C	Long	Own	Spic	Sag	Str	P	DR	Ful	4	Tim	2 R	51.1	B6IA	1191	189	12850	34x7P	34x7DP
Gramm A X 4	1	795	Con	L	4	3⅞x4	200.4	24.0	50@2800	C		Per	Jon	Blo	Ross	Til	P	Aut	W-G	4	Tim	Sp	36.3	L4IH	380	131	3300	20x6.00	20x6.50
Gramm A X 6	1	895	Con	L	6	3⅜x4	214.0	27.3	61@3000	C		Per	Jon	Blo	Ross	Til	P	Aut	W-G	4	Tim	Sp	36.3	L4IH	380	131	3550	20x6.00	20x6.50
Gramm B X 4	1½	895	Con	L	4	3⅞x4½	200.4	24.0	50@2800	C		Per	Jon	Blo	Ross	Til	P	Aut	W-G	4	Tim	Sp	36.3	L4IH	380	131	3475	20x6.00	20x6.00D
Gramm B X 6	1½	995	Con	L	6	3⅜x4	214.7	27.3	61@3000	C		Per	Jon	Blo	Ross	Til	P	Aut	W-G	4	Tim	Sp	36.3	L4IH	380	131	3725	20x6.00	20x6.00D
Gramm B	1¾	1495	Lyc	L	6	3¼x4½	224.0	25.3	61@2900	G		Per	Own	Blo	Ross	Zen	Vac	Aut	Cov	4	Tim	Sp	34.3	L4IH	278	140	4150	20x6.50	20x6.50D
Gramm C	2	1795	Lyc	L	6	3⅝x4½	278.6	31.5	82@2600	G		Per	Own	Blo	Ross	Zen	P	Aut	Cov	4	Tim	Sp	31.0	L4IH	353	160	4800	20x7.00	20x7.00D
†Gramm C X	2	1095	Con	L	4	4½x4¼	227.0	27.2	55@2600	G		Per	Jon	Blo	Ross	Til	P	Aut	W-G	4	Tim	Sp	37.0	L4IH	452	131	3900	20x6.50	20x6.50D
Gramm C X	2	1295	Con	L	6	3⅜x4⅜	248.2	27.3	70@3000	C		Per	Jon	Blo	Ross	Til	P	Aut	W-G	4	Tim	Sp	37.0	L4IH	452	131	4150	20x6.50	20x6.50D
Gramm D	2½	1995	Lyc	L	6	3¾x4½	299.0	33.7	90@2200	G		Per	Jon	Blo	Ross	Zen	P	Aut	Cov	4	Tim	Sp	43.0	L4IHV	339	160	5200	20x7.50	20x7.50D
Gramm E	3	2595	Lyc	L	6	3⅞x5	353.8	36.0	90@2200	G		Per	Own	Blo	Ross	Zen	P	Aut	Cov	4	Tim	Sp	35.0	L4IHV	659	160	5950	20x8.25	20x8.25D
Gramm E Y	3	3595	Con	H	6	4⅛x4¾	380.8	40.8	90@2200	C		Per	Ful	Blo	Ross	Zen	P	Aut	Cov	4	Wis	2 R	30.0	L4IHA	—	190	7200	20x7.50	20x7.50D
Gramm G Y	4	4345	Con	H	6	4⅜x4¾	428.4	45.9	100@2200	C		Per	Ful	Blo	Ross	Zen	P	Aut	Cov	4	Wis	2 R	28 0	BW4IM	—	210	7700	20x8.25	20x8.25D
Gramm G W	4	5175	Con	H	6	4⅜x4¾	428.0	45.9	100@2200	C		Per	Ful	Blo	Ross	Zen	P	Aut	Cov	4	Wis	2 R	—	4IA	864	157	9500	20x9.00	20x9.00D
Gramm H Y	5	6545	Con	L	6	4¾x5⅝	611.4	54.1	127@2300	G		Per	Ful	Blo	Ross	Zen	P	Aut	Ful	4	Wis	2 R	25.2	4IA	—	236	10100	36x8	36x8D
Indiana 60	*6000	995	Con	L	6	3⅜x4	214.7	27.3	61@3000	C	G & O		Borg	Spic	Ross	Zen	P	Aut	W-G	3	Col	Sp	19.8	B4IM	297	132	3200	30x5	30x5
Indiana 64	6500	1195	Con	L	6	3⅜x4⅝	248.2	27.3	65@2700	C		Long	Borg	Spic	Ross	Str	Vac	Aut	Br-L	3	Col	Sp	21.3	C4IM	244	137	3400	30x5	30x5
Indiana 74	7500	1290	Con	L	6	3⅜x4⅝	248.2	27.3	65@2700	C		Long	Borg	Spic	Ross	Str	Vac	Aut	Br-L	4	Col	Sp	25.6	C4IM	190	137	3450	32x6	32x6
Indiana 89	9000	1525	Con	L	6	3⅜x4⅝	248.2	27.3	65@2700	C		Long	Borg	Spic	Ross	Str	Vac	Aut	Br-L	4	Col	Sp	20.9	C4IM	292	149	4050	32x6	32x6
Indiana 111 XW	12500	1850	Her	L	4	4 x5	251.3	25.6	46@2000	G		McC	Borg	Spic	Ross	Str	Vac	Aut	Br-L	4	Wis	2 R	35.2	K2IM	270	120	3740	32x6	32x6D
Indiana 120	12000	1990	Con	H	6	4 x4⅛	311.0	38.4	73@2400	C	G & O		Br-L	Spic	Ross	Str	P	Aut	Br-L	4	Tim	Sp	31.3	L4IH	353	156	5200	32x6	32x6D
Indiana 140	14000	2495	Con	H	6	4 x4⅛	311.0	38.4	73@2400	C	G & O		Br-L	Spic	Ross	Str	P	Aut	Br-L	4	Wis	2 R	35.3	54IHV	356	156	5400	32x6	32x6D
Indiana 141	17000	2935	Con	H	6	4 x4⅛	311.0	38.4	73@2400	C	G & O		Br-L	Spic	Ross	Str	P	Aut	Br-L	4	Wis	2 R	46.2	L4IHV	380	170	6200	32x6	32x6D
Indiana 170	17000	3160	Con	H	6	4⅛x4¾	380.9	40.8	89@2400	C	G & O		Br-L	Spic	Ross	Str	P	Aut	Br-L	4	Wis	2 R	46.6	L4IHV	380	170	6800	32x6	32x6D
Indiana 175	17500	3660	Con	H	6	4⅜x4¾	427.5	45.9	100@2400	C	G & O		——	Spic	Ross	Str	P	Aut	——	5	Wis	2 R	45.3	L4IHV	380	170	7200	34x7	34x7D
Indiana 195	19500	3820	Con	H	6	4⅛x4¾	380.9	40.8	89@2400	C	G & O		Br-I	Spic	Ross	Str	P	Aut	Br-L	4	Wis	2 R	49.5	L4IHV	471	170	7500	34x7	34x7D
Indiana 190	19000	4185	Con	H	6	4⅛x4¾	380.9	40.8	89@2400	C		Long	Borg	Spic	Ross	Str	P	Aut	Br-L	7	Tim	Wo	78.6	T2IMV	500	168½	7625	34x7	34x7D
Indiana 220	22000	4560	Con	H	6	4⅜x4¾	427.5	45.9	100@2400	C	G & O		Br-L	Spic	Ross	Str	P	Aut	Br-L	4	Wis	2 P	50.7	L4IHV	546	170	8200	36x8	36x8D
Indiana 250	25000	5950	Con	H	6	4⅜x4¾	427.5	45.9	100@2400	C		Long	Br-L	Spic	Ross	Str	P	Aut	Br-L	4	Tim	Wo	63.7	LT4IHV	604	182	10000	40x8	40x8D
Indiana 290	30000	7250	Con	L	6	4¾x5¾	611.4	54.1	116@1800	C		Long	Br-L	Spic	Ross	Str	P	L-N	Br-L	7	Tim	Wo	95.0	T4IA	676	182	10750	38x7P	40x14S
*Indiana 640	40000	9700	Con	L	6	4¾x5¾	611.4	54.1	116@1800	C		Long	Br-L	Spic	Ross	Str	P	L-N	Br-L	7	Tim	Wo	90.9	T4IA	864	212	14000	38x7P	36x16S
International A W I	¾	650	Wak	L	4	3½x4½	173.0	19.6	30@2700	G			Mod	Rock	Mec	Ross	Zen	Vac	DR	Mec	3	Own	Sp	17.4	B4IM	212	136	2620	20x5.25	26x5.25
International Sp. Del.	¾	675	Wak	L	4	3½x4½	173.0	19.6	30@2700	G			Long	Rock	Mec	Ross	Zen	Vac	DR	Mec	3	Eat	Sp	60.3	BE4IM	256	124	2200	30x5.25	30x5.25
International 6 Sp. Spec.	1	675	Wak	L	4	3½x4½	173.0	19.6	30@2700	G			Long	Rock	Mec	Ross	Zen	Vac	DR	Mec	3	Eat	Sp	52.6	BE4IM	292	124	2420	30x5	30x5
International S 24	1¼	1160	Lyc	L	4	3⅜x5	220.9	22.5	43@2350	G			Long	Own	Mec	Col	Zen	Vac	DR	Own	3	Eat	Sp	21.3	B4IM	346	130	3200	30x5	30x5
International S 26	1¼	1310	Lyc	L	6	3¼x4½	224.0	25.3	61@2800	G			Long	Own	Mec	Col	Zen	Vac	DR	Own	3	Eat	Sp	21.3	B4IM	346	130	3250	30x5	30x5
International A W 2	1½	675	Wak	L	4	3½x4½	173.0	19.6	30@2700	G			Long	Rock	Mec	Ross	Zen	Vac	DR	Mec	3	Own	Sp	60.1	BE4IM	492	136	2980	20x5.50	20x6.00
International S F 34	1½	1450	Lyc	L	4	3⅜x5	221.0	22.5	43@2350	G			Long	Own	Mec	Col	Zen	Vac	DR	Own	3	Eat	Sp	22.6	BE4IM	346	140	3520	30x5	32x6
International A L 3	1½	1450	Lyc	L	6	3¼x4½	224.0	25.3	61@2800	G			Mod	Own	Mec	Ross	Zen	Vac	DR	W-G	4	Own	Sp	42.9	B4IM	295	138	4300	20x6.00	20x6.00D
International S F 36	1½	1600	Lyc	L	6	3¼x4½	224.0	25.3	61@2800	G			Long	Own	Mec	Col	Zen	Vac	DR	Own	3	Eat	Sp	22.6	BE4IM	346	140	3570	30x5	32x6
International A 2	1½	675	Wak	L	4	3⅝x4½	186.0	21.0	39@2400	G			Mod	Mec	Mec	Ross	Zen	Vac	DR	W-G	4	Own	Sp	39.5	BE4IM	212	136	2800	5.50x20	6.00x20
International B 2	1½	675	Wak	L	4	3⅝x4½	186.0	21.0	39@2400	G			Mod	Mec	Mec	Ross	Zen	Vac	DR	Mec	3	Own	Sp	47.3	BE4IM	212	136	2830	5.50x20	6.00x20
International S D 44	2	1590	Lyc	L	4	3⅜x5	221.5	22.5	43@2350	G			Long	Own	Mec	Col	Zen	Vac	AB	Own	4	Eat	Sp	40.6	BE4IM	421	117	3700	30x5	32x6
International S D 46	2	1740	Lyc	L	6	3¼x4½	224.0	25.3	61@2800	G			Long	Own	Mec	Col	Zen	Vac	AB	Own	4	Eat	Sp	40.6	BE4IM	421	117	3750	30x5	32x6
International S F 46	2	1950	Lyc	L	6	3¼x4½	224.0	25.3	61@2800	G			Long	Own	Mec	Col	Zen	Vac	DR	Own	4	Eat	Sp	40.6	BE4IM	421	140	4000	32x6	32x6D
International A 4	2	1860	Own	H	6	3⅝x4½	279.0	31.5	65@2800	G			Mod	Own	Mec	Ross	Zen	Vac	DR	Own	5	Own	Sn	47.8	BE4IM	378	145	5070	32x6	32x6D
International H S 54	2½	3850	Hall	H	4	4¼x5½	312.0	28.9	54@1800	C			Own	Own	Own	Own	Zen	Vac	RB	Own	5	Eat	2 R	60.5	BE4IM	726	148	8600	36x5S	36x8S
International H S 54 C	2½	3850	Hall	H	4	4¼x5½	312.0	28.9	54@1800	C			Own	Own	Own	Own	Zen	Vac	RB	Own	5	Own	Cn	63.8	BO4IM	732	148	8680	36x5S	36x16S
International W 1	2½	3850	Hall	H	4	4¼x5½	312.0	28.9	54@1800	C			Own	Own	Own	Own	Zen	Vac	RB	Own	5	Own	2 R	60.5	BE4IM	710	148	8300	36x5S	36x8S
International A 5	3	2550	Own	H	6	3⅝x4½	279.0	31.5	65@2800	G			Mod	Own	Mec	Ross	Zen	Vac	DR	Own	5	Own	Sp	52.6	BE4IM	430	156	5606	34x7	34x7D
International A 6	3	2675	Own	H	6	3⅝x4½	279.0	31.5	65@2800	G			Mod	Own	Mec	Ross	Zen	Vac	DR	Own	5	Own	Sp	62.5	BE4IM	430	156	5750	34x7	34x7D
International H S 74	3½	4850	Hall	H	4	4¾x5½	390.0	36.1	60@1800	C			Own	Own	Own	Own	Zen	Vac	RB	Own	5	Eat	2 R	70.5	BE4IM	850	160	10700	36x5S	40x12S
International H S 74 C	3½	4850	Hall	H	4	4¾x5½	390.0	36.1	60@1800	C			Own	Own	Own	Own	Zen	Vac	RB	Own	5	Own	Ch	79.1	BO4IM	736	160	11000	36x6S	40x12S
International W 3	3½	4850	Hall	H	4	4¾x5½	390.0	36.1	60@1800	C			Own	Own	Own	Own	Zen	Vac	RB	Own	5	Own	2 R	70.5	——	—	160	10125	36x6S	40x12S
International H S 104 C	5	5500	Hall	H	4	4¾x5½	390.0	36.1	60@1800	C			Own	Own	Own	Own	Zen	Vac	RB	Own	5	Own	Ch	90.5	BO4IM	736	160	11095	36x6S	40x14S
La France Rep. A 1	6000	795	Lyc	L	6	3 x4¾	201.5	21.5	60@2500	G	G & O		Borg	Spic	Han	Zen	Vac	Aut	Ful	4	Tim	Sp	36.1	L4IH	—	132	3000	20x5.50	32x6
La France Rep. C 1	7500	1295	Lyc	L	6	3¼x4½	224.0	25.4	61@2750	G	G & O		Borg	Spic	Han	Zen	Vac	Aut	Ful	4	Tim	Sp	29.1	L4IH	—	144	3300	20x6.00	32x6
La France Rep. D 1	9000	1595	Lyc	L	6	3¼x4½	224.0	25.4	61@2750	G	G & O		Borg	Spic	Han	Zen	Vac	Aut	Ful	4	Tim	Sp	37.9	L4IH	—	144	3725	30x5	30x5D
La France Rep. F-3	13000	2395	Lyc	L	6	3¾x4½	299.0	33.7	80@2500	G		Per	Ful	Spic	Han	Zen	Vac	Aut	Ful	4	Tim	Sp	40.1	L4IHV	—	174	5520	34x7	34x7
La France Rep. H 2	16000	2985	Lyc	L	6	3½x5	354.0	36.0	85@2300	G		Per	Ful	Spic	Han	Zen	Vac	Aut	Ful	4	Wis	2 R	41.6	L4IHV	—	174	6370	34x7	34x7D
La France Rep. M 2	20000	4000	Wak	L	6	4⅜x5½	462.0	46.0	97@2000	G		Per	Ful	Spic	Han	Zen	Vac	Aut	Ful	5	Wis	2 R	48.1	L4IHV	—	174	7500	36x8	36x8D
La France Rep. 35-2	24000	5600	Wak	L	6	4½x5¾	549.0	48.6	98@1850	G		Own	Ful	Spic	Han	Zen	Vac	Aut	Ful	4	Wis	2 R	45.4	L4IHV	—	174	[illegible]250	38x9	38x9D
Maccar 36 A	1½	1900	Bud	L	6	3¾x4½	298.0	33.7	83@2800	G			Per	Br-L	Spic	Ross	Str	P	DR	Br-L	4	Tim	Sp	31.1	L4W	315	171	4850	32x6	32x6D
Maccar 40 A	2	2400	Bud	L	6	3¾x4½	298.0	33.7	83@2800	G			Per	Br-L	Spic	Ross	Str	P	DR	Br-L	4	Sal	Sp	40.6	L4W	365	171	5340	32x6	32x6D
Maccar 56	3	3350	Bud	L	6	3¾x5	311.0	33.7	72&2100	G			Per	Br-L	Spic	Ross	Str	Vac	DR	Br-L	4	Wis	2 R	34.5	L4W	380	183	6200	34x7	34.7D
Maccar 60	3	3950	Bud	L	6	4⅛x5⅛	411.0	40.8	103@2100	G			Per	Br-L	Spic	Ross	Str	Vac	DR	Br-L	5	Tim	Wo	37.2	L4W	377.5	183	6600	20x9.00	20x9.00D
Maccar 66 A	4	5500	Her	L	4	4⅝x4¾	479.0	51.3	106@2100	G			Per	Br-L	Spic	Ross	Zen	Vac	DR	Br-L	7	Tim	Wo	86.7	4 A	617.5	206	8200	20x9.75	20x9.75D
Maccar 86 A	5	5950	Her	L	4	4⅝x4¾	479.0	51.3	106@2100	G			Per	Br-L	Spic	Ross	Zen	Vac	DR	Br-L	7	Tim	Wo	85.0	4 A	623	206	9500	20x10.50	20x10.50D
Mack B L	1½	2500	Own	L	6	3¼x5	248.9	25.3	63@2800	G			Own	Own	Spic	Gem	Str	Vac	NE	Own	4	Tim	Sp	Opt	L4IH	302	148	4450	20x6.00B	20x6.00DB
††Mack B G	2	3000	Own	L	6	3⅜x5	309.6	31.5	75@2600	G			Own	Own	Spic	Own	Str	Vac	NE	Own	4	Own	Sp	Opt	O4IV	415	156	5200	32x6	32x6D
Mack A B	2½-3	4350	Own	L	4	4¼x5	283.7	28.9	60@2200	G			Own	Own	Spic	Own	Str	Gra	NE	Own	4	Own	2 R	Opt	O4IV	471	146½	7100	34x7	34x7D
††Mack A B	2½-3	4000	Own	L	4	4¼x5	283.7	28.9	60@2200	G			Own	Own	Spic	Own	Str	Vac	NE	Own	4	Own	Ch	Opt	O4IV	471	146½	6850	34x7	34x7D
Mack A B	2½-3	4500	Own	L	6	3⅜x5	309.6	31.5	75@2600	G			Own	Own	Spic	Own	Str	Gra	NE	Own	4	Own	2 R	Opt	O4IV	471	146½	7050	34x7	34x7D
††Mack A B	2½-3	4150	Own	L	6	3⅜x5	309.6	31.5	75@2600	G			Own	Own	Spic	Own	Str	Vac	NE	Own	4	Own	Ch	Opt	O4IV	471	146½	6850	34x7	34x7D
††Mack B C	3-4	5250	Own	L	6	4 x5½	417.7	38.4	100@2300	G			Own	Own	Spic	Own	Str	Vac	NE	Own	4	Own	2 R	Opt	O4IV	610	154	8350	36x8	36x8D
††Mack B C	3½-5	5500	Own	L	6	4 x5½	417.7	38.4	100@2300	G			Own	Own	Spic	Own	Str	Vac	NE	Own	4	Own	Ch	Opt	O4IV	610	154	9500	36x8	36x8D
††Mack B J	3½-5	6150	Own	L	6	4½x5½	525.2	48.6	126@2200	G			Own	Own	Spic	Own	Str	Vac	L-N	Own	4	Own	2 R	Opt	O4IV	567	168½	10100	36x8	36x8D
††Mack A K	3½-5	5150	Own	L	4	5 x6	471.2	40.0	77@1800	G			Own	Own	Spic	Own	Str	Gra	RB	Own	4	Own	2 R	Opt	O4IV	492	162	9800	36x5S	36x5DS
††Mack A K	3½-5	5250	Own	L	4	5 x6	471.2	40.0	77@1800	G			Own	Own	Spic	Own	Str	Gra	RB	Own	4	Own	2 R	Opt	O4IV	492	162	9700	36x5S	36x5DS
††Mack A C	3½-5	4950	Own	L	4	5 x6	471.2	40.0	77@1800	G			Own	Own	Spic	Own	Str	Gra	RB	Own	4	Own	Ch	Opt	OJXM	194	156	9500	36x5S	40x5DS
††Mack A K	3½-5	6450	Own	L	6	4½x5½	525.5	48.6	126@2200	G			Own	Own	Spic	Han	Str	Vac	L-N	Own	4	Own	2 R	Opt	O4IV	492	174	[illegible]950	22x10.50B	22x10.50DS
††Mack A C	5½-7	5500	Own	L	4	5 x6	471.2	40.0	77@1800	G			Own	Own	Spic	Own	Str	Gra	RB	Own	4	Own	Ch	Opt	OJXM	194	156	10100	36x6S	40x6DS
††Mack A C	5½-7	6550	Own	L	6	4½x5½	525.5	48.6	126@2200	G			Own	Own	Spic	Han	Str	Vac	L-N	Own	4	Own	Ch	Opt	O4IV	492	174	[illegible]950	24x10.50B	24x10.50DB
††Mack A C	7½	6000	Own	L	4	5 x6	471.2	40.0	77@1800	G			Own	Own	Spic	Own	Str	Gra	RB	Own	4	Own	Ch	Opt	OJXM	194	156	10450	36x7S	40x7DS
††Mack A P	7½	9500	Own	L	6	5 x6	706.5	60.0	150@2000	G			Own	Own	Spic	Own	Str	Gra	NE	Own	4	Own	Ch	Opt	O2IV	287	191	12200	36x7S	40x8DS
Mack A K 6—6 wheel	——	9500	Own	L	6	4½x5½	525.2	48.6	126@2200	G			Own	Own	Spic	Own	Str	Vac	L-N	Own	4	Own	Ch	Opt	ORIV	574	152	[illegible]300	9.75x22B	9.75x22DB
††Mack A C 6 wheel	10	7500	Own	L	4	5 x6	471.2	40.0	77@1800	G			Own	Own	Spic	Own	Str	Gra	RB	Own	4	Own	Ch	Opt	ORIV	574	125	[illegible]800	36x6S	40x12S
Mack A C 6—6 wheel	——	8700	Own	L	6	4½x5½	525.2	48.6	126@2200	G			Own	Own	Spic	Own	Str	Vac	L-N	Own	4	Own	Ch	Opt	ORIV	574	145	[illegible]930	9.75x22B	9.75x22LB
††Mack A P 6 wheel	10	12000	Own	L	6	5 x6	706.5	60.0	150@2000	G			Own	Own	Spic	Own	Str	Gra	NE	Own	4	Own	Ch	Opt	ORIV	574	145	[illegible]250	36x7S	46x12S
Paige	½	*895	Own	L	6	3½x4½	224.0	23.4	70@3200	C		Long	Long	Un	Ross	DL	I	DR	—	3	——	Sp	14.2	4IH	187	115	2350	18x5.50B	18x5.50B
Pierce-Arrow P T	2	2950	Own	L	6	3¾x4½	298.0	33.5	70@2600	G		Long	Long	Cle	Han	Zen	P	DR	Cla	4	Tim	Sp	——	B4IMV	388	160	5600	20x7.50B	20x7.50B
Pierce-Arrow P W	3	4150	Own	L	6	4⅛x4½	361.0	40.3	77@2400	G		Long	Long	Cle	Han	Zen	P	DR	Cov	4	Tim	*Wo	——	W4IA	488	150	6660	20x9.00B	20x9.00B
Pierce-Arrow P X	4	5375	Own	L	6	4⅜x4¾	479.0	51.3	103@2200	G		Long	Long	Cle	Han	Zen	P	DR	Cov	4	Tim	Wo	——	W4IA	610	160	9360	20x10.50B	20x10.50B
Pierce-Arrow P Y	5	5950	Own	L	6	4⅜x4¾	479.0	51.3	103@2200	G		Long	Long	Cle	Han	Zen	P	DR	Cov	4	Own	*Wo	——	W4IA	701	160	10675	24x10.50B	24x10.50B
Pierce-Arrow P Z	8	6950	Own	L	6	4¾x5¾	611.0	54.1	130@2000	G		Long	Long	Cle	Han	Zen	P	DR	Own	4	Own	*Wo	——	W4IA	702	168	12800	36x7B	40x16B
Relay Series 15 AA	¾	1370	Con	L	6	3⅜x4	214.7	27.3	52@2200	C		Long	Borg	Blo	Han	Str	Vac	Aut	W-G	4	Own	3R	38.4	L4IH	297	131	3750	30x5P	30x5P
Relay Series 15 AB	1	1400	Con	L	6	3⅜x4	214.7	27.3	52@2200	G		Long	Borg	Blo	Han	Zen	Vac	Aut	W-G	4	Own	2R	38.4	L4IH	297	131	3800	30x5P	30x5P
Relay Series S 11	1	1700	Bud	L	6	3⅜x4½	241.6	27.3	53@2200	G		Long	Br-L	Blo	Han	Zen	Vac	Aut	Br-L	4	Own	2R	25.5	L4IH	297	142	4050	30x5P	30x5P
Relay Series S 11	1½	1900	Bud	L	6	3⅜x4½	241.6	27.3	53@2200	G		Long	Br-L	Blo	Han	Zen	Vac	Aut	Br-L	4	Own	2R	30.0	L4IH	297	162	4500	30x5P	30x5DP
Relay Series 40	1½	2990	Bud	L	6	3⅝x5	309.6	31.5	64@2100	G		Long	Br-L	Blo	Han	Zen	Vac	Aut	Br-L	4	Own	2R	34.5	L4IH	394	168	5300	34x5P	34x5DP
Relay Series 40	2	3240	Bud	L	6	3⅝x5	309.6	31.5	64@2100	G		Long	Br-L	Blo	Han	Zen	Vac	Aut	Br-L	4	Own	2R	34.5	L4IH	394	168

Major Specifications and Mechanical Details of 1931 Commercial Cars

(CONTINUED FROM PAGE NINE)

Make and Model	Capacity—Tons or Lbs.	Chassis Price	Engine	Valve Arr'g'm't	No. of Cyls.	Bore and Stroke	Piston Disp.	Tax H. P.	Max. Brake H. P. and Peak R. P. M.	Type Camshaft Drive	Radiator Make	Clutch Make	Universals Make	Steering Gear Make	Carburetor Make	Fuel Feed Type	Make Electr'l System	Make Transmission	No. Spds. For.	Rear Axle Make	Type Final Drive	Final Gear Reduction	Type Service Brakes	Area Service Brakes	Standard Wheel Base	Chassis Wgt.	Standard Tire Sizes Front	Standard Tire Sizes Rear
Selden 67 C	5	4975	Con	H	6	4⅜x4¾	427.0	45.9	100@2460	G	Own	Br-L	Spic	Ross	Str	Vac	Aut	Br-L	7	Wis	2R	——	L4IHVA	—	171	8700	36x8	36x8D
Selden 77	7	7365	Con	L	6	4¾x5¾	611.0	54.1	127@2300	G	Own	Br-L	Spic	Ross	Str	Vac	Aut	Br-L	7	Wis	2R	——	BW41M	—	178	11600	40x8	42x9D
Service Series S 11	1	1600	Bud	L	6	3⅜x4½	241.6	27.3	53@2200	G	Long	Br-L	Blo	Han	Zen	Vac	Aut	Br-L	4	Col	Sp	25.5	——	—	142	3900	30x5P	30x5P
Service Series S 11	1½	1900	Bud	L	6	3⅜x4½	241.6	27.3	53@2200	G	Long	Br-L	Blo	Han	Zen	Vac	Aut	Br-L	4	Tim	Sp	29.2	L4IH	297	162	4300	30x5P	30x5DP
Service Series 40	1½	2990	Bud	L	6	3⅝x5	309.6	31.5	64@2100	G	Long	Br-L	Blo	Han	Zen	Vac	Aut	Br-L	4	Tim	Wo	34.8	L4IH	297	162	4700	34x5P	34x5DP
Service Series S 11	2	2030	Bud	L	6	3⅜x4½	241.6	27.3	53@2200	G	Long	Br-L	Blo	Han	Zen	Vac	Aut	Br-L	4	Tim	Sp	29.2	L4IH	297	162	4500	32x6	32x6D
Service Series 40	2	3240	Bud	L	6	3⅝x5	309.6	31.5	64@2100	G	Long	Br-L	Blo	Han	Zen	Vac	Aut	Br-L	4	Tim	Wo	34.8	L4IH	394	168	4900	36x6	36x6D
Service Series 40	2½	3240	Bud	L	6	3⅝x5	309.6	31.5	64@2100	G	Long	Br-L	Blo	Han	Zen	Vac	Aut	Br-L	4	Tim	Wo	34.8	L4IH	394	168	5100	36x6P	36x6D
Service Series 60	2½	4580	Bud	L	6	4½x5½	410.9	40.8	83@2100	G	Long	Ful	Blo	Han	Zen	Vac	Aut	Ful	5	Tim	Wo	63.0	L4IH	584	175	7000	36x6	36x6D
Service Series 60	3	4630	Bud	L	6	4½x5½	410.9	40.8	83@2100	G	Long	Ful	Blo	Han	Zen	Vac	Aut	Ful	5	Tim	Wo	63.0	——	—	175	8100	36x6	38x7D
Service Series 80	3½	5250	Bud	L	6	4½x5½	411.0	40.8	83@2100	G	Long	Borg	Blo	Ross	Zen	Vac	Aut	Br-L	7	Tim	Wo	98.2	——	—	175	8200	36x6S	36x12S
Service Series 80	4	5330	Bud	L	6	4½x5½	411.0	40.8	83@2100	G	Long	Own	Blo	Ross	Zen	Vac	Aut	Br-L	7	Tim	Wo	98.2	——	—	175	8400	36x6S	36x14S
Service Series 100	5	5830	Bud	L	6	4½x5½	410.9	40.8	83@2100	G	Long	Own	Blo	Ross	Zen	Vac	Aut	Br-L	7	Tim	Wo	95.0	——	—	175	9600	36x6S	40x14S
Sewart 30	1	695	Lyc	L	4	3¾x4½	199.0	22.5	50@2600	G	Fed	Borg	Spic	Ross	Str	P	DR	W-G	4	Sal	Sp	25.1	B4IM	..	130	3158	20x6.50	20x6.50
Stewart 30X	1	795	Lyc	L	6	3 x4¾	185.0	19.8	55@2600	G	Fed	Borg	Spic	Ross	Str	P	DR	W-G	4	Sal	Sp	25.1	B4IM	..	130	3199	20x6.50	20x6.50
Stewart 40	1½	895	Lyc	L	4	3¾x4½	199.0	22.5	50@2600	G	Fed	Borg	Spic	Ross	Str	P	DR	W-G	4	Cla	Sp	35.1	B4IM	..	130	3531	20x6.50	20x6.50D
Stewart 40 X	1½	995	Lyc	L	6	3 x4½	201.5	23.8	60@2600	G	Fed	Borg	Spic	Ross	Str	P	DR	W-G	4	Sal	Sp	35.1	B4IM	..	130	3574	20x6.50	20x6.50D
Stewart 34 X	2½	1195	Lyc	L	6	3¼x4½	224.0	23.3	61@2600	G	Own	Borg	Spic	Ross	Str	P	DR	W-G	4	Cla	Sp	35.1	B4IM	..	145	3891	20x6.50	20x6.50D
Stewart 28 X	2	1495	Lyc	L	6	3¼x4½	224.0	25.3	61@2600	G	Own	Ful	Spic	Ross	Str	P	DR	Ful	4	Cla	Sp	44.1	B4IM	..	136	4239	20x6.50	20x6.50D
Stewart 29 X S	2	1695	Lyc	L	6	3⅝x4½	278.0	26.3	85@2750	G	Own	Ful	Spic	Ross	Str	P	DR	Ful	4	Cla	Sp	44.1	B4IM	..	145	5194	32x6	32x6D
*Stewart 18 X	2	2690	Lyc	L	6	37x5	310.0	31.5	85@2750	G	Own	Ful	Spic	Ross	Str	P	DR	Ful	4	Tim	Wo	48.1	B4IM	..	165	6245	32x6	32x6D
Stewart 32 X	2½	1990	Lyc	L	6	3⅜x4½	278.0	31.5	80@2500	G	Mod	Ful	Spic	Ross	Str	P	DR	Ful	4	Cla	Sp	46.1	B4IM	..	165	5552	32x6	32x6D
Stewart 35 X	3	2590	Lyc	L	6	3¾x4½	299.0	33.8	85@2750	G	Fed	Ful	Spic	Ross	Str	P	DR	Ful	4	Cla	Sp	46.1	B4IM	..	165	6224	20x8.25B	20x8.25D
Stewart 36 X	3	2990	Lyc	L	6	37x5	354.0	36.2	90@2750	G	Fed	Ful	Spic	Ross	Str	P	DR	Br-L	4	Tim	Wo	105.1	——	..	165	6864	20x8.25	20x8.25D
Stewart 38-8	3½	3990	Lyc	L	8	3¾x4¾	462.0	44.4	130@2800	G	Fed	—	Spic	Ross	Str	P	DR	Br-L	12	Tim	2R	105.1	——	..	170	7964	20x9.00	20x9.00D
Stewart 38-6	3½	3990	Wak	L	6	4⅜x5½	420.0	45.9	100@2000	G	Fed	—	Spic	Ross	Str	P	DR	Br-L	12	Tim	2R	105.1	——	..	170	7964	20x9.00	20x9.00D
Stewart 19 X	3½	3690	Lyc	L	6	37x5	354.0	36.2	90@2750	G	Mod	Ful	Spic	Ross	Str	P	DR	Ful	12	Tim	Wo	105.1	B4IM	..	165	7474	34x7	34.7D
Stewart 31 X	5	4990	Wak	L	6	4⅜x5½	462.0	45.9	100@2000	G	Mod	Ful	Spic	Ross	Str	P	DR	Ful	8	Tim	Wo	105.1	B4IMV	—	165	9885	36x6S	36x6SD
Stewart 27 X	7	5700	Wak	L	6	4⅜x5½	462.0	45.9	100@2000	G	Own	Ful	Spic	Ross	Str	P	DR	Ful	8	Tim	Wo	105.1	B4IMV	—	165	10512	36x7	40x7D
Studebaker S-1	½	595	Own	L	6	3⅜x4⅛	221.0	27.3	70@3200	C	McC	Long	Spic	Ross	Str	P	DR	W-G	3	Own	Sp	16.4	B4IM	148	114	2897	19x5.25	19x5.25
Studebaker S-20	½	695	Own	L	6	3¼x4⅛	205.0	25.4	70@3200	C	McC	Long	Spic	Ross	Str	P	DR	W-G	4	Tim	Sp	36.2	B4IM	224	130	3044	20x6.00	32x6
Studebaker S-30	1½	775	Own	L	6	3¼x4⅛	205.0	25.4	70@3200	C	McC	Long	Spic	Ross	Str	P	DR	W-G	4	Tim	Sp	36.2	B4IM	224	160	3199	20x6.00	32x6
Studebaker S-40	2	945	Own	L	6	3¼x4⅛	205.0	25.4	70@3200	C	McC	Long	Cle	Ross	Str	P	DR	W-G	4	Tim	Sp	37.4	B4IM	276	136	3825	20x6.50	20x6.50D
Studebaker S-50	2	895	Own	L	6	3¼x4⅛	205.0	25.4	70@3200	C	McC	Long	Cle	Ross	Str	P	DR	W-G	4	Tim	Sp	37.4	B4IM	276	148	3855	20x6.50	20x6.50D
Studebaker S-60	2	945	Own	L	6	3¼x4⅛	205.0	25.4	70@3200	C	McC	Long	Cle	Ross	Str	P	DR	W-G	4	Tim	Sp	37.4	B4IM	276	146	3265	20x6.50	20x6.50D
Studebaker GN-N	——	1245	Own	L	6	3⅜x4⅛	221.0	27.3	70@3200	C	—	Long	—	Ross	Str	P	DR	Cla	4	Cla	Sp	33.5	B4IM	348	160	3409	30x5	32x6
Studebaker 88	——	3295	Own	L	8	3½x4⅜	327.0	39.2	115@3200	G	Long	Long	Spic	Ross	Str	P	DR	Ful	4	Eat	Sp	24.6	B4IMV	444	184	5200	20x7.50	20x7.50D
Studebaker 99	——	3795	Own	L	8	3½x4⅜	337.0	39.2	115@3200	G	Long	Long	Spic	Ross	Str	P	DR	Ful	4	Eat	Sp	24.6	B4IMV	505	184	5680	20x7.50	20x7.50D
White 15B	*7,500	1545	Own	L	4	3¾x5½	226.4	22.5	31@1600	G	Own	Own	Spic	Own	Zen	Vac	L-N	Own	4	Own	Sp	18.6	O2XM	226	133½	2402	30x5	30x5
White 160	*8,000	1700	Own	L	4	4 x5¾	289.0	25.6	45@1800	G	—	Own	Mec	Han	Zen	Vac	DR	Own	4	Own	Sp	19.5	L4IH	276	138	4025	30x5	30x5
White 60	*8,000	1850	Own	L	6	3½x4½	260.0	29.4	54@2100	C	Own	Own	Mec	Han	Zen	Vac	DR	Own	3	Own	Sp	17.8	L4IH	276	138	3739	30x5	30x5D
White 161	*9,000	1850	Own	L	4	4 x5¾	289.0	25.6	45@1800	G	—	Own	Mec	Han	Zen	Vac	DR	Own	4	Own	Sp	19.5	L4IH	276	138	4290	34x7	34x7
White 162	*10,000	1900	Own	L	4	4 x5¾	289.0	25.6	45@1800	G	—	Own	Mec	Han	Zen	Vac	DR	Own	4	Own	Sp	19.5	L4IH	276	138	4260	30x5	30x5D
White 210	*10,000	2300	Own	L	4	4 x5¾	289.0	25.6	45@1800	G	—	Own	Spic	Han	Zen	Vac	DR	Own	4	Own	Sp	23.4	L4IH	349	148	4875	30x5	30x5D
White 61	*10,500	2450	Own	L	6	3¾x4½	299.0	33.7	61@2100	C	Own	Own	Spic	Han	Zen	Vac	DR	Own	4	Own	Sp	23.4	L4IH	349	148	4789	30x5	30x5D
White 611	*11,500	2550	Own	L	6	3¾x4½	299.0	33.7	61@2100	C	—	Own	—	Han	Zen	Vac	DR	Own	4	Own	Sp	23.4	L4IH	349	148	4980	20x7.00B	20x7.00DB
White 211	*11,500	2425	Own	L	4	4 x5¾	289.0	25.6	45@1800	G	—	Own	Spic	Han	Zen	Vac	DR	Own	4	Own	Sp	23.4	L4IH	349	148	5110	32x6	32x6D
White 212	*13,000	2700	Own	L	4	4 x5¾	289.0	25.6	45@1800	G	—	Own	Spic	Han	Zen	Vac	DR	Own	4	Own	Sp	23.4	L4IH	349	148	5230	34x7	34x7D
White 56	*13,000	3125	Own	L	4	4 x5¾	289.0	25.6	45@1600	G	Own	Own	Spic	Own	Zen	Vac	Eis	Own	4	Own	Sp	26.2	O2IM	268	165	5276	36x4	36x7
White 612	*13,000	2800	Own	L	6	3¾x4½	299.0	33.7	61@2100	C	—	Own	—	Han	Zen	Vac	DR	Own	4	Own	Sp	23.4	L4IH	349	148	5100	20x7.50B	20x7.50DB
White 620	*15,000	4350	Own	H	6	4 x5¼	396.0	38.4	72@1800	G	Own	Own	Spic	Ross	Zen	P	DR	Own	4	Own	Sp	41.8	OL4IHV	—	157	7300	20x8.25B	20x8.25DB
White 51A	*17,000	3750	Own	L	4	4½x5¾	326.0	28.9	54@1600	G	Own	Own	Spic	Own	Zen	Vac	Eis	Own	4	Own	Sp	35.6	O2IM	335	170	6438	36x5	36x8
White 51AT	*17,000	3875	Own	L	4	4½x5¾	326.0	28.9	54@1600	G	Own	Own	Spic	Ross	Zen	P	DR	Own	4	Own	Sp	41.4	OL4IHV	—	157	7700	20x9.00B	20x9.00DB
White 621	*18,000	4650	Own	H	6	4⅜x5¾	396.0	38.4	72@1800	C	—	Own	Spic	Ross	Zen	P	DR	Own	4	Own	Sp	41.4	O4IHV	554	168	8500	20x9.00B	20x9.00DB
White 620	*20,000	5000	Own	H	6	4⅜x5¾	396.0	38.4	72@1800	C	Own	Own	Spic	Ross	Zen	P	DR	Own	4	Own	Sp	41.4	O4IHV	554	168	8500	20x9.00B	20x9.00DB
White 630	*21,500	4650	Own	L	4	4½x5¾	326.0	28.9	54@1600	G	Own	Own	Spic	Own	Zen	Vac	Eis	Own	4	Own	2R	66.1	OPXM	224	174	8737	36x5	40x5D
White 55	*22,000	4400	Own	L	4	4½x5¾	326.0	28.9	54@1600	G	Own	Own	Spic	Own	Zen	Vac	Eis	Own	4	Own	2R	49.7	OPXM	224	180	7797	36x5	36x5D
White 611	*24,000	6450	Own	H	6	4⅜x5¾	519.0	45.9	96@1800	C	Own	Own	Spic	Ross	Zen	P	L-N	Own	4	Own	2R	46.9	O4IA	—	180	9700	20 9.75B	20x9.75DB
*White 630 SW200	*24,000	6280	Own	H	6	4 x5¼	396.0	38.4	72@1800	C	—	Own	Spic	Ross	Zen	P	DR	Own	4	Tim	Wo	44.2	OF1HV	—	193	10000	20x8.25B	20x8.25DB
White 631	*24,000	5750	Own	H	6	4 x5¼	396.0	38.4	72@1800	C	Own	Own	Spic	Ross	Zen	P	DR	Own	4	Own	2R	56.9	O4IHV	—	168	9000	20x9.25B	20x9.25DB
White 52	*28,000	5100	Own	L	4	4½x5¾	326.0	28.9	54@1600	G	Own	Own	Spic	Own	Zen	Vac	Eis	Own	4	Own	2R	58.4	OPXM	224	174	9409	36x6	40x12
White 52T	*28,000	4700	Own	L	4	4½x5¾	326.0	28.9	54@1600	G	Own	Own	Spic	Own	Zen	Vac	Eis	Own	4	Own	2R	76.5	OPXM	224	129½	8461	36x5	40x5D
White 613	*32,000	6950	Own	H	6	4⅜x5¾	519.0	45.9	96@1800	C	Own	Own	Spic	Ross	Zen	P	L-N	Own	4	Own	2R	66.5	O4IA	—	180	10000	24x10.50B	24x10.50DB
*White 612 SW310	*24,000	8045	Own	H	6	4⅜x5¾	519.0	45.9	96@1800	C	—	Own	Spic	Ross	Zen	P	L-N	Own	4	Own	2R	66.5	O4IA	—	198	12670	20x9.00B	20.9.00DB
White 612	*34,000	6750	Own	H	6	4⅜x5¾	519.0	45.9	96@1800	C	Own	Own	Spic	Ross	Zen	P	L-N	Own	4	Tim	Wo	79.9	OTIHV	—	198	14400	40x8	40x8D
*White 613 SW410	*40,000	8570	Own	H	6	4⅜x5¾	519.0	45.9	96@1800	C	—	Own	Spic	Ross	Zen	P	L-N	Own	4	Own	2R	66.5	O4IA	—	180	10600	24x9.75B	24x9.75DB
**White 60K	——	2200	Own	L	6	3½x4½	260.0	29.4	54@2100	C	—	Own	Mec	Han	Zen	Vac	DR	Own	4	Own	Sp	19.5	L4IH	276	138	3825	20x7.00B	20x7.00B
White 601	——	1900	Own	L	6	3½x4½	260.0	29.4	54@2100	C	—	Own	Mec	Han	Zen	Vac	DR	Own	4	Own	Sp	19.5	L4IH	276	138	4125	20x7.50B	20x7.50B
White 602	——	2050	Own	L	6	3½x4½	260.0	29.4	50@1800	C	—	Own	Mec	Han	Zen	Vac	DR	Own	4	Own	Sp	19.5	L4IH	276	138	4125	20x7.50B	20x7.50B
Willys 6-C-113	½	395	Own	L	6	3¼x3⅞	193.0	25.3	65@3400	C	Fed	Borg	Spic	Own	Til	P	Aut	Own	3	Own	Sp	12.4	B4IM	147	113	1872	19x5.00	19x5.00
Willys 6-C-131	1½	595	Own	L	6	3¼x3⅞	193.0	25.3	65@3400	C	Fed	Borg	Spic	Own	Til	P	Aut	W-G	4	Cla	Sp	40.8	B4IM	232	131	2625	20x5.50	32x6
Willys 6-C-157	1½	630	Own	L	6	3¼x3⅞	193.0	25.3	65@3400	C	Fed	Borg	Spic	Own	Til	P	Aut	W-G	4	Cla	Sp	46.8	B4IM	232	157	2900	20x5.50	32x6

GENERAL NOTATIONS

*REFERENCE MARKS apply to individual lines only and explanations are given under the subdivision for each company in the "SPECIAL NOTATIONS."

CAPACITIES given in this table are in tons or fractions of tons. *Shows maximum allowable gross weight in pounds.

WHEEL BASES given are standard, but optional wheel bases are available in many cases.

CHASSIS WEIGHT—Unless otherwise specified includes gas, water, oil, etc.

ENGINE—Bud, Buda: Con, Continental; Her, Hercules; Lyc, Lycoming; Pont, Pontiac; Wak, Waukesha; Wis, Wisconsin; Hall, American Car & Foundry.

VALVE ARRANGEMENT—L, "L" head; H, in head; O, overhead; T, T head.

TYPE OF CAMSHAFT DRIVE—G, gear; C, chain.

RADIATOR MAKE—G & O, G & O Mfg. Co.; Per, Perfex Corp.; Long, Long Mfg. Co.; Har, Harrison Radiator Corp.; Fed, Fedders Mfg. Co.; McC, McCord Radiator & Mfg. Co.; Mod, Modine Mfg. Co.; Hex, Hexcel Radiator Co.

CLUTCH MAKE—Jon, Jones Clutch & Gear Co.; Ful, Fuller & Sons Mfg. Co.; Borg, Borg & Beck Co.; Br-L, Brown Lipe Gear Co.; Rock, Rockford Drill & Machine Co.; Cov, Covert Gear Co.; Long, Long Mfg. Co.; Detr, Detroit Gear & Machine Co.; Mer, Merchant & Evans; Hal, Merchants & Evans.

UNIVERSALS MAKE—Spic, Spicer Mfg. Co.; Blo, Blood Bros. Machine Co.; Sup, Superior Universal Products; Un, Universal Products Co.; Cle, Cleveland Steel Products Corp.; Pet, Peters; Opt, optional; Mec, Mechanics Machine Co.

STEERING GEAR MAKE—Ross, Ross Gear & Tool Co.; Han, Hannum Mfg. Co.; Sag, Saginaw Steering Gear Co.; Gem, Gemmer Mfg. Co.; Col, Columbus Gear & Pinion Co.; W-G, Warner Gear Corp.

CARBURETOR—Car, Carter; Mar, Marvel; Sch, Wheeler-Schebler; St, Stromberg; DL, Detroit Lubricator; Til, Tillotson; Zen, Zenith-Detroit.

FUEL FEED—Gra, gravity; Vac, vacuum tank; P, fuel pump.

ELECTRICAL SYSTEM—AB, American-Bosch; Aut, Electric Auto-Lite; Eis, Eisemann; L-N, Leece-Neville; NE, North East; RB, Robert Bosch; DR, Delco-Remy.

TRANSMISSION—Br-L, Brown-Lipe; Cov, Covert; Ful, Fuller; Mec, Mechanics Machine; Mun, Muncie; W-G, Warner Gear; Cot, Cotta Gear Co.; Cla, Clark Equipment Co.

REAR AXLE, Cla, Clark Equipment; Col, Columbia; Eat, Eaton; Pont, Pontiac; Sal, Salisbury; Tim, Timken; Wis, Wisconsin.

FINAL DRIVE—IG, internal gear; St, straight bevel; Sp, spiral bevel; Wo, worm; 2R, double reduction; Ch, chain, S-T, semi-transverse.

TIRES—B, balloon; D, dual; S, solid; P, pneumatic.

TYPE OF SERVICE BRAKES—B4IM, Bendix, 4 wheel, internal mechanical; B6IA, Bendix, 6 wheel, internal air; B4IMV, Bendix, 4 wheel, internal mechanical, vacuum; B2IA, Bendix, operating on 4 rear wheels, internal air; BW4IM, Bendix front, Wisconsin rear, 4 wheel internal, mechanical; BE4IM, Bendix front, Eaton rear, 4 wheel, internal mechanical; BO4IM, Bendix front, own rear, 4 wheel internal mechanical; B4IH, Bendix, 4 wheel, internal hydraulic; B4, Bendix, 4 wheel.

C4IM, Columbia, 4 wheel, internal, mechanical; K2IM, Clark, 2 wheel, internal, mechanical.

L4IHVA, Lockheed, 4 wheel, internal, hydraulic, vacuum, air; LO4ID, Lockheed, own, 4 wheel, internal, drive shaft; LT4DV, Lockheed Timken, 4 wheel, drive shaft, vacuum; L4IH, Lockheed, 4 wheel, internal, hydraulic; L4IHV, Lockheed, 4 wheel, internal, hydraulic, vacuum; LT4IVA, Lockheed, Timken, 4 wheel, internal, vacuum, air; L6IHV, Lockheed, 6 wheel, internal, hydraulic, vacuum; L6IH, Lockheed, 6 wheel, internal, hydraulic.

O2IM, Own, 2 wheel, internal, mechanical; O2IV, Own, 2 wheel, internal, vacuum; O4IA, Own, 4 wheel, internal, air; O4IM, Own, 4 wheel, internal, mechanical; O4IV, Own, 4 wheel, internal, vacuum; O4M, Own, 4 wheel, mechanical; O2XM, Own, 2 wheel, external, mechanical; O4XM, Own, 4 wheel, external, mechanical; OJXM, Own, jack shaft, external, mechanical; OL4IH, Own, Lockheed, 4 wheel, internal, hydraulic; OPX, Own, propeller shaft, external; OPXM, Own, propeller shaft, external, mechanical; OPM, Own, propeller shaft, mechanical; ORIV, Own, rear wheels, internal, vacuum.

S4IM, Steeldraulic, 4 wheel, internal, mechanical.

T4rIA, Timken, operating on 4 rear wheels, internal, air; T4IA, Timken, 4 wheel, internal, air; T6IA, Timken, 6 wheel, internal, air; T2IMV, Timken, 2 wheel, internal, mechanical, vacuum.

W4I, Westinghouse, 4 wheel, internal; W4IA, Westinghouse, 4 wheel, internal, air. 4IA, 4 wheel, internal, air; 4IH, 4 wheel, internal, hydraulic.

SPECIAL NOTATIONS

AMERICAN-LA FRANCE

*Chief model also available as 2½-ton model, 34x7 tire, dual rear; weight, 6,400. Price, $3,900.

Chieftain model also available as dump truck, 160-inch wheel base.

Balloon tires optional on Chief, Chieftain and Big Chief models.

AUTOCAR

*Engines in these models are located under the driver's seat.

BROCKWAY

*Six-wheelers.

CHEVROLET

Utility model available on 131-inch wheel base with chassis weight of 2,760 pounds and equipped with dual rear wheels.

DAY ELDER

*Six-wheeler

Additional standard wheel bases are available on different models as follows:

85.....146, 168 240.....204
110.....168, 186 285.....204
130.....165, 180, 204 345.....204
160.....165, 180, 201 402.....204

DODGE

*Models F40, F41, F61 and F62 can be had with double drop frame.

DIAMOND T

*Six-wheelers.

Additional standard wheel bases available as follows:

551.....158	759.....167,	192	
504.....166½	801.....180½,	199¼	
605.....174	1200.....174½,	180	
603.....157, 179	1699.....174½,	180	
609.....177¼	1601.....184		

F. W. D.

*Indicates six-wheel model.

The BTL and BT models are special line construction trucks in which complete provision for mounting AT and T earth boring machine, winch, body and other line construction accessories is included in the standard chassis.

Special power take-off transmission, which provides 3 power take-offs which may be operated in any transmission speed, optional on all models.

FEDERAL

*Six-wheelers.

‡Solid tires standard, no spare rim or tire.

GRAMM

Series	Straight Rating	Wheel Base	Pay Load Range
AX 4	8,000	157	1 to 1½ tons
AX 6	8,000	157	1 to 1½ tons
BX 4	10,000	157	1½ to 2 tons
BX 6	10,000	157	1½ to 2 tons
CX 4	12,000	157-180	2 to 3 tons
CX 6	12,000	157-180	2 to 3 tons
B	12,000	157-174	1¾ to 2½ tons
C	14,000	145-196	2 to 3 tons
D	17,000	145-196	2½ to 4 tons
E	20,000	145-196	3 to 4½ tons
EY			3 to 4 tons
GY			4 to 5 tons
GW	28,000	157-240	5 to 7½ tons
HY			5 to 6½ tons

‡Both the four and six cylinder are also offered in 157-inch wheel base at $1,145 and $1,345, respectively.

FORD

Chassis weight given does not include gas, water, oil, etc.

GENERAL MOTORS TRUCK

*Capacity indicated is the Straight Rating (combined weight of chassis, body, equipment and pay load) for which each chassis is designed and guaranteed to satisfactorily operate under average conditions. The size of the tires used does not affect this Straight Rating, but to secure maximum tire mileage it is suggested that the total gross weight be limited to a "recommended gross weight" for each tire equipment based on tire capacity. Prices cover base chassis and vary with wheel base and tire combinations. The number of wheel base lengths, tire types, range of "recommended gross weights" and resulting pay load range (assuming nominal body allowance) for each model follows:

Note: Models T-15 to T-60, inclusive, are available for export only as coach chassis.

Model	Wheel Bases	Tire Types	Range of "Rec. Gross Weights"	Pay Load Range
T-11	1	1	3800	½
T-15	3	10	4500- 6500	½-1½
T-17	2	8	5500- 8500	½-1½
T-19	3	22	6500- 8500	1½-2
T-25	3	17	6800- 9000	1½-2
T-26	4	..	8500-11000	2-3
T-30	3	15	10000-12500	2-3
T-31	4	..	11000-14000	2½-4
T-42	4	12	12000-15000	2½-4
T-44	4	12	12000-16000	3-4½
T-51	4	..	16500-19000	4-6½
T-55	4	..	16500-19000	4-5½
T-60	4	18	18500-22000	5-6½
T-61	4	..	19500-22000	5-6½
T-82	4	12	19000-24000	5-7
T-83	4	..	20000-24000	5-7
T-85	3	..	22000-26000	5-7
T-90	3	7	22000-28000	5-7½
T-95	3	..	28000-34000	7-9
T-96	3	..	28000-34000	7-9

†Models T-90, T-95 and T-96 are six-wheelers, the latter having one driven and one trailing axle. Optional rear axle gear ratios available for all models. Double reduction axles available for Models T-60, T-61 and T-82.

INDIANA

*Six-wheelers.

MACK

Other wheel bases furnished on all truck models.

On 6-wheel jobs 4 rear wheels driven by chains, foot brake on 4 rear wheels.

††Made also in tractor models.

PAIGE

*Price includes panel or screen body. Chassis weight given does not include gas, water, etc.

PIERCE-ARROW

*Optional final drive on Models PW, PX, PY and PZ.

REO

Model 15 Junior can be had with 4-speed transmission at additional cost. Models 15 Junior, DF 129, DF, FA, FE and FF are available with dual wheels at additional cost.

SELDEN

Additional standard wheel bases are available on different models as follows:

Model 37C..... 162 and 181
39C..... 177 and 190½

47CB, 47CD..... 151, 164 and 184
67C..... 151, 164, 184 and 198

STEWART

Models 30 and 30X can also be supplied in 110, 120 and 140-inch wheel base.

Models 40 and 40X can also be supplied in 110, 140 and 160-inch wheel base.

*Models 34X can be supplied in 136, 145, 160 and 176-inch wheel base.

Model 38X can be supplied in 130, 145, 160 and 176-inch wheel base.

Model 29XS can be supplied in 135, 160 and 176-inch wheel base.

*Models 18X, 32X and 36X can be supplied in 148, 190 and 220-inch wheel base.

*Models 19X, 31X and 27X can be supplied in 148, 172, 190, 220 and 235-inch wheel base.

As optional equipment Models 18X, 19X, 36X, 31X and 27X can be supplied with Timken dual reduction rear axle.

Models 38-8 and 38-6 can be supplied in 196, 226 and 241-inch wheel base and worm axle.

STUDEBAKER

*Capacity Model GN-N is 4,000 pounds for body, cab, driver and pay load.

Maximum gross load, chassis, body and pay load for Models 77 and 88 is 12,500 pounds and for Model 99 is 14,000 pounds.

‡Hand brake same as foot brake, standard. Hand brake on drive shaft, special equipment.

WHITE

*Six-wheelers.

**Price on Model 60K includes body.

MOTOR INDUSTRY TAKES PART IN AD EXHIBIT

Philadelphia, June 4.—The first annual Philadelphia Advertised Exhibition conducted by the Philadelphia Business Progress Association, in co-operation with the Poor Richard Club, closed here today.

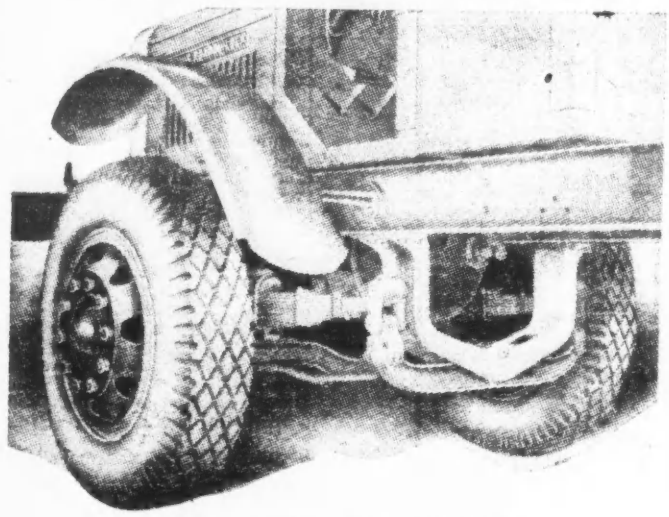
The exhibitors in the automotive and allied trades are as follows: Autocar Sales and Service Company; Edward G. Budd Manufacturing Company; Automobile Club of Philadelphia; J. G. Brill Company; Budd Wheel Company; Electric Storage Battery Company; L. H. Gilmer Company; David Lupton's Sons Company; John Warren Watson Company; Philadelphia Gear Works and Westinghouse Electric and Manufacturing Company.

WHITLEY HEADS IOWA MANUFACTURERS GROUP

Marshalltown, Ia., June 4.—P. S. Whitley, Clinton, was el

Production--Engineering--Factory

Hug Front Spring Rocker



HUG front-spring rocker installation

A front spring rocker for installation at the rear of the front springs is a new principle introduced in front-spring mounting design by the Hug Company, Highland, Ill., manufacturer of Hug motor trucks. As shown in the illustration, a walking beam is pivoted at the center of a U-shaped cross member and is connected by shackles to the rear of the front spring.

This construction is claimed to be of advantage in truck operation over uneven roads and particularly those encountered in road-building service. It is also claimed that this construction absorbs the stresses and strains of severe service, which result in twisting, breaking and bending of frame rails, breaking of motor supports or hangers, and twisting of cab, radiator or hood.

Cleaning Mohair Upholstery

Ordinarily, mohair velvet upholstery requires comparatively little attention aside from an occasional brushing with a stiff whiskbroom, which is a helpful precaution against undue wear from gritty particles which may damage the fibers. The following practical suggestions, however, are offered by the Mohair Institute for taking care of mohair velvet upholstery which has become soiled.

Ordinary grease spots and soiling from constant use can be removed from mohair velvet with warm water and any good laundry or toilet soap. If this operation is not sufficient, any of the reputable dry-cleaning compounds are practical for the purpose, but under no circumstances should any ammonia solutions be used, as ammonia might be destructive to the color in any fabric.

Ink spots may be removed with a saturated solution of oxalic acid. Soak the satin for a few seconds with this solution, then rinse in clear water to which a few drops of ammonia have been added. Perhaps a better method, eliminating the use of ammonia, is a solution of potassium acid oxalate, which is salts of lemon or salts of sorrell. Soak the satin in this solution in the proportion of two and one-half teaspoonfuls of the salts dissolved in one-half pint of water, leaving the fabric in the solution several hours if necessary, after which apply soapsuds on the spot, allowing the suds to soak into the fiber, then rinse with cold water. This will neutralize any of the acid which may be left in the goods.

Sometimes, after severe use, mohair upholstery takes a kind of set in spots, the pile being laid slightly, giving the goods a mottled color effect. This can be removed by wringing out a cloth in hot water and laying it over the parts affected. Leave the wet cloth on the mohair velvet until the cloth dries. If the velvet has not been wholly restored, repeat the operation, with the result that the pile which is laid down will come back to its original position and the fabric will have its original plump appearance, not showing any signs of wear. It is never necessary to cover any mohair velvet upholstery with slipcovers, particularly when used at home or in an automobile.

A. S. T. M. EXHIBIT TO FEATURE SPECIAL APPARATUS

Visitors to the A. S. T. M. exhibit of testing apparatus and machines, which is to be held June 22-26 at the Stevens, Chicago, will be interested in seeing how small some of the testing machines can be and still effectively determine certain data. A special hydraulic testing machine built by a leading research laboratory exerts a pull of only sixty pounds and was developed to make cross bending tests of flat springs in connection with a study of hydrogen embrittlement. The pressure in the oil chamber is so small that it is measured by a water manometer in place of the usual test gauges.

Another machine, designed for fatigue tests on specimens five hundredths of an inch in diameter, stands on a base 4 by 10 inches and is only 4 inches high. It weighs less than ten pounds, but has been successfully used and serves its purpose splendidly.

Fire Test—There will be apparatus shown by A. S. T. M. Committee C-5 which offers a unique method of measuring the fire resistance of wood, especially to the spread of flame. A specimen of wood is suspended in a long iron tube and a gas flame is applied. An ingenious device measures the loss of weight and other measurements are also made. This apparatus has demonstrated that it is a reliable and quick method of measuring the property of wood to support combustion, and numerous successful tests have been made at the Forest Products Laboratory, where it was constructed.

Plastic Flow in Metals—Dr. A. Nadai, who this year at the annual meeting of the society will describe outstanding developments regarding the phenomenon of slip in plastic materials, as the Edgar Marburg Lecture for the year, has evolved interesting equipment by which it is possible to see demonstrated the fundamentals of this subject. Faint traces of plastic flow can be observed by means of this apparatus and deformed surfaces of metal specimens can be photographed.

Fatigue Machine for Sheet Metals—Bell Telephone Laboratories will have several special testing machines in their booth. Among these will be a fatigue machine for sheet metals. This was designed to test simultaneously forty specimens of sheet metal of varying thicknesses and it is possible by varying the deflection of the reciprocating arms to vary the intensity of the stress.

STOCK RACING CARS MAKE GOOD SHOWING IN INDIANAPOLIS RACE

Indianapolis, Ind., June 4.—Stock racing cars, so-called because of their containing about 90 per cent factory parts, gave a good account of themselves in the 500-mile automobile race here last Saturday and one of these—the Russel-Snowberger entry—powered by a Studebaker President engine, said to be one of the Atlantic City record cars, held the pole position and finished fifth.

The Snowberger car raced with the same specifications as in 1930 when it finished in eighth place, and then continued around the A. A. A. circuit with outstanding success against special-built racers. It has a piston displacement of 336 cubic inches and its driver claimed he had increased the speed of the car this year over last by more than ten miles an hour through streamlining and improved carburetion. This car averaged 94.09 m. p. h. this year despite the enforced reduced speed due to a slight rainfall, compared with last year's average speed for this entry of 89.166 m. p. h.

Close behind Snowberger came another revamped product—one of the old Model A Duesenberg's—in sixth place, with an average of 94.026 miles an hour.

Probably as near stock as any of the qualifying cars were those finishing ninth, tenth and eleventh. These were the Elco Royale, a Reo eight, averaging 91.839; the Marr Special, a Hudson eight, averaging 89.580, and the G N H Special, powered by a Chrysler eight motor at 87.651. Phil Shafer, whose mount was powered by a Buick eight, was still running at the finish, but lost considerable time when flagged off the track for infraction of caution instructions during the rainfall.

The average of the tenth place winner this year with four stock motors listed among the group, compared with only two in 1930, was more than four miles an hour faster than that of last year, and is expected to offer a great deal of encouragement to those considering stock entries.

The Snowberger car is an outstanding example of the feasibility, if not the advisability, of returning to the stock car as a racing product. This machine has now come through two Indianapolis races without mechanical trouble and is ready for another summer campaign around the A. A. A. tracks. Original, or rather total, cost of the car and all repairs necessary during its racing career Snowberger claims is not more than $1,500 compared with $5,000 to $20,000 invested in specially constructed racing machines.

The performance of the Marr Special was under the close observance of the engineering fraternity due to the fact that it was the only one of the more important entries that was equipped with a splash lubrication system. The Marr came through the race with only one stop at the pits for gasoline and oil.

Four other stock motors starting the race were eliminated through wrecks rather than by mechanical breakdown, and one of these, another Studebaker President, was running in third place when it leaped the wall.

One of the keenest disappointments of the race was the failure of the new Stutz DV-32 to gain a place among the starters. Encouraged by the showing of the Stutz in 1930, which won tenth place, the factory entered the DV, the only factory-entered car in the list, but due to the unusually high qualifying speeds the Stutz was eliminated. Its ten-mile average was nearly ninety-eight miles an hour. Only one car qualifying below 100 miles an hour gained the right to start the race.

Racing authorities blamed the desire of Stutz officials to keep their mount strictly stock, in the chassis at least, for its failure to get in. Everything, including carburetor, was stock in the Stutz which, it is thought, could easily have gained a place in the line-up by adding more carburetors.

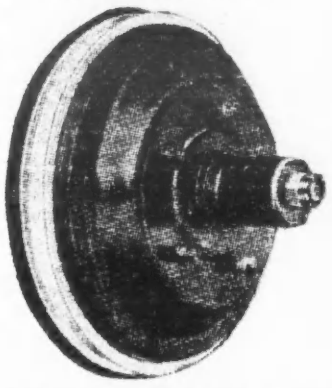
OIL MEN DISCUSS INTERNAL COMBUSTION ENGINES FOR DRILLING

Dallas, Tex., June 4.—David L. Trax, of the Gypsy Oil Company, and R. R. Hawkins, of the Texas Company, both of Tulsa, Okla., speaking today at the mid-year meeting of the American Petroleum Institute's Division of Production, told how internal combustion engines for rotary drilling power have permitted drilling an oil well 6,656 feet, or more than a mile deep, and setting the casing complete in fifty-four days.

In their paper, "Internal Combustion Engines for Rotary Drilling," they presented results of a scientific study of the possibilities of this form of power, explaining that while such engines have been used for years in rotary drilling, only casual information as to their application and operation has been available. Their study of the use of gas and gasoline engines at twelve well sites in Oklahoma and Kansas disclosed that the cost for fuel and water averaged 33 cents per foot on natural or residue gas fuel and $1.07 on gasoline fuel. Cost of fuel and water in rotary drilling by Diesel engine was found to be 35 cents per foot of hole, and the authors saw favorable possibilities for use of this type.

Although they presented no definite conclusions as to depreciation rates, they declared that if the rate is predicated at five years it probably would be determined more by obsolescence than by actual wear. For drilling wells in wildcat territory internal combustion engines were said to have the distinct advantage of low cost of fuel and water per foot of hole drilled. Objections to high speed, multi-cylinder engines, such as lack of flexibility and limited power, it was predicted, would be overcome through continued use and further development.

BRAKES KEPT COOL BY NEW BAND REINFORCEMENT



DOUBLE DIAMOND brake drum reinforcing band

The Double Diamond brake drum reinforcing band of channeled design has been recently introduced by Automotive Gear Works, Inc., Richmond, Ind. Although designed particularly for Model A Ford, the new band fits a number of other cars having brake drums of 11¼ in. diameter.

Advantages claimed for the Double Diamond band are that it permanently eliminates brake drum distortion, noise and chatter caused by drum vibration; gives a smoother brake, with an extra margin of safety; aids in keeping brake drums cool, and lengthens the life of the brake lining. Brakes also require less frequent adjustment when the reinforcing band is installed, it is claimed.

Engineers in a Listening Mood!

At White Sulphur Springs, June 14th to 19th, engineers, production men and other factory officials will gather to discuss important papers and problems in connection with their business.

Reports of the meetings each day, personal news, reprints of papers and news of all the rest of the industry will appear daily in issues of Automotive Daily News. Copies of Automotive Daily News will be distributed to those in attendance and also mailed to thousands who cannot attend. This is bonus distribution and not part of the regular A. B. C. circulation.

Advertise in each S. A. E. issue. No other automotive medium can give service equal to Automotive Daily News.

Forms close two days preceding publication date.

Automotive Daily News

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DETROIT OFFICE: Geo. M. Slocum, Manager, Fisher Building, Detroit, Mich.

Chevrolet Makes Best Sales Records This Year in East

Registrations Top 1930 in New England and East; Were Off Only Lightly On Pacific Coast

NEW YORK, June 4.—Deliveries of new Chevrolet passenger cars at retail in the first four months of this year exceeded the corresponding period of 1930 in New England and the East, and the decline from a year ago amounted to only 5 per cent. on the Pacific Coast, according to a compilation of the registration figures by geographical divisions.

April sales of Chevrolet cars topped a year ago in the New England and Eastern states and were only 1.1 per cent. off in the three Pacific Coast states.

Registrations of this car showed large gains in April over March in all sections of the country, with the 52 per cent. upturn in New England setting the pace. Returns are available from forty-five states and the District of Columbia.

Aggregate registrations in the various sections of the country in April, as compared with a year ago and with the preceding month, are contained in the following table:

	April 1931	April 1930	March 1931
New England	6,430	5,715	4,230
East	19,511	16,867	14,191
South	16,536	18,021	14,227
Great Lakes	22,027	22,278	15,661
Middle West	4,876	6,417	3,249
Rocky Mts.	2,451	2,817	1,737
Pacific Coast	5,426	5,487	4,946

Here are similar figures for the first four months of this year, as compared with the corresponding period of 1930:

	1931	1930
New England	13,990	13,489
East	50,168	47,644
South	51,549	66,273
Great Lakes	47,143	53,799
Middle West	18,665	14,039
Rocky Mountains	7,509	8,833
Pacific Coast	17,009	18,005

The increase in aggregate Chevrolet registrations in the six New England states in April over last year was 12 per cent., while the upturn over March amounted to 52 per cent. The gain for the first four months over a year ago was 3.7 per cent.

Aggregate sales in the East were 15 per cent. above April, 1930, and 37 per cent. over March, while, for the first four months of this year, the total was 5.3 per cent. higher than in the similar period of last year.

In the South, Chevrolet registrations showed a gain of 16 per cent. over the preceding month, but were 8 per cent. below a year ago. The sales for the four months were 22 per cent. below a year ago.

The Great Lakes states reported a seasonal gain in Chevrolet sales in April of 40 per cent. and a decline from last year of 11 per cent. The four months' decline was 12 per cent.

In the agricultural states of the Middle West, Chevrolet registrations in April were 50 per cent. above the preceding month and 24 per cent. below a year ago. The decline for the four months was 24 per cent.

In the Rocky Mountain region, registrations were 41 per cent. over March and 13 per cent. under April, 1930, with the total for the first four months showing a decline of 15 per cent.

On the Pacific Coast, the April gain over March was 10 per cent. and the drop from a year ago was only 1.1 per cent. The decline for the first four months was 5 per cent.

The following tabulations show Chevrolet registrations by geographical divisions in April, as compared with April, 1930, and March, 1931:

New England

	April, 1931	April, 1930	Mar., 1931
Connecticut	1,198	1,068	836
Maine	750	754	403
Massachusetts	3,267	2,908	2,214
New Hampshire	467	452	299
Rhode Island	462	424	363
Vermont	286	289	115
Totals	6,380	5,895	4,230

East

Delaware	207	219	168
Maryland	1,342	1,453	1,247
New Jersey	2,900	2,179	2,179
New York	8,490	6,755	5,982
Pennsylvania	5,745	5,135	4,143
West Virginia	827	1,126	472
Totals	19,511	16,867	14,191

South

Alabama	799	936	691
Arkansas	394	713	327
Florida	908	738	809
Georgia	1,054	784	*800
Kentucky	1,303	1,545	949
Mississippi	500	1,097	448
Missouri	2,656	3,282	3,432
North Carolina	1,129	882	817
South Carolina	735	536	528
Tennessee	1,395	1,591	774
Texas	3,318	4,007	2,820
Virginia	1,465	1,440	1,100
D. of Columbia	880	470	732
Totals	16,536	18,021	14,227

*Estimated.

Great Lakes

Illinois	4,611	4,601	3,091
Indiana	2,880	1,854	1,904
Michigan	4,210	4,341	2,833
Minnesota	2,956	3,886	3,035
Ohio	5,220	5,194	3,059
Wisconsin	2,150	2,402	1,739
Totals	22,027	22,278	15,661

Middle West

Iowa	2,501	3,578	1,819
Nebraska	1,418	1,520	707
North Dakota	517	732	393
South Dakota	440	587	330
Totals	4,876	6,417	3,249

Rocky Mountains

Arizona	87	191	197
Colorado	975	1,026	403
Idaho	245	452	187
Montana	358	360	373
Nevada	69	64	72
New Mexico	233	162	70
Utah	294	413	297
Wyoming	190	149	138
Totals	2,451	2,817	1,737

Pacific Coast

California	4,096	3,549	3,803
Oregon	627	434	458
Washington	703	1,104	685
Totals	5,426	5,487	4,946

Here are the Chevrolet registrations for the first four months of this year, as compared with the corresponding period of last year, by geographical divisions:

New England

	1931	1930
Connecticut	2,856	2,758
Maine	1,330	1,072
Massachusetts	7,308	7,061
New Hampshire	940	855
Rhode Island	1,060	1,203
Vermont	496	540
Totals	13,990	13,489

East

Delaware	570	637
Maryland	3,965	4,284
New Jersey	8,799	7,325
New York	20,642	18,167
Pennsylvania	14,252	14,521
West Virginia	1,940	2,710
Totals	50,168	47,644

South

Alabama	2,217	3,344
Arkansas	1,434	2,406
Florida	3,594	3,742
Georgia	*2,700	*3,000
Kentucky	3,801	4,427
Mississippi	1,328	3,119
Missouri	10,395	14,354
North Carolina	3,108	3,082
South Carolina	2,158	2,396
Tennessee	3,291	4,629
Texas	10,638	15,544
Virginia	4,524	4,858
Dis't. of Columbia	2,361	1,468
Totals	51,549	66,273

*Estimated.

Great Lakes

Illinois	7,702	8,755
Indiana	4,784	4,904
Michigan	10,481	12,646
Minnesota	5,991	5,809
Ohio	12,339	14,526
Wisconsin	5,846	7,159
Totals	47,143	53,799

Middle West

Iowa	6,702	9,643
Nebraska	4,310	5,341
North Dakota	1,414	1,468
South Dakota	1,613	2,213
Totals	14,039	18,665

Rocky Mountains

Arizona	533	948
Colorado	2,625	2,929
Idaho	783	1,244
Montana	1,286	1,302
Nevada	235	207
New Mexico	635	707
Utah	865	1,023
Wyoming	547	473
Totals	7,509	8,833

Pacific Coast

California	13,599	13,382
Oregon	1,885	1,342
Washington	2,325	3,275
Totals	17,009	18,005

Makes Ads Valuable

Read This Ad and Save $5.00

Cut Out This Ad and Bring It With You for a $5.00 Credit On Any of These Exceptional Used Car Bargains.

Low Priced Used Cars at Ford Dealers Lot

$25.00 to $95.00

1924 Ford Touring
1925 Ford Touring
1926 Ford Touring
1924 Overland Touring
1924 Maxwell Touring
1925 Cleveland Touring
1922 Chevrolet Touring

2 Good Model T Ford Trucks in Good Shape With Good Bodies, Good Rubber

1924 Ford Roadster
1924 Dodge Sedan
1925 Dodge Sedan
1924 Studebaker Sedan
1923 Chevrolet Sedan
1924 Chevrolet Coach

You Can Buy Your Choice on Ford's V. C. C. Finance Plan

In the Later Models at Corresponding Low Prices We Have

Ford 1930 Model A Coach
Ford 1930 Model A Coupe
Ford 1930 Model A De Luxe Sedan
Ford 1929 Model A Town Sedan
Ford 1929 Model A Tudor
2—1929 Chevrolet Coaches

$100 to $150 Down Payment

Come Soon and Have First Choice of these Offerings

OPEN EVENINGS AND SUNDAYS

Sampson-O'Connell, Inc.

Ford 1419 Ogden Avenue Phone: Broad 3500 Ford

Sampson-O'Connell, Inc., Ford dealer, at 1419 Ogden Ave., Superior, Wis., recently made an offer that attracted a great deal of interest to prospective buyers of used automobiles and stimulated business.

In a newspaper advertisement three columns wide and 9 inches in length this company announced that a $5 credit would be allowed by cutting out the advertisement from the newspaper and bringing it to the showrooms of this company, where the credit would be given on any of the used automobile bargains listed in the advertisement.

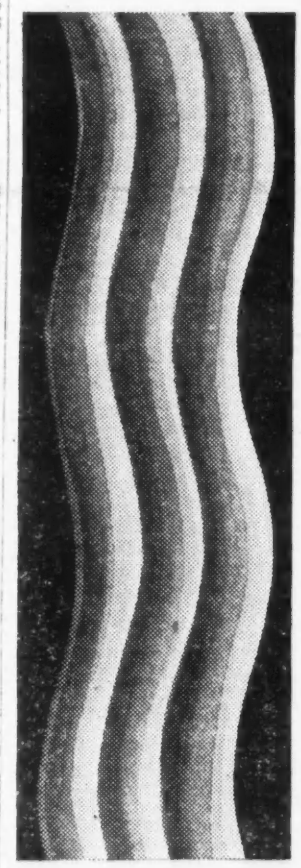
Officials of this company also pointed out that another important factor that created a great deal of public interest was the attractive make-up and lay-out of the advertisement, which is considered as one of the best used automobile advertisements ever used.

FISHER BODY SCHOOL HELD IN CHARLOTTE

Charlotte, N. C., June 4.—The Fisher Body Corporation recently conducted a school for General Motors dealers' body mechanics and service salesmen at the Buick branch here, the main purpose being to instruct the dealers' mechanics in the proper method of preparing automobile bodies and instruct the service managers and service salesmen in what items to bring to the attention of the car owners so as to keep their cars not only running mechanically well but looking presentable.

Training was given in the ways to insure proper life of roof material, attention in the line of dressing replacement after a reasonable length of time and other times for conserving the life of the body of the car.

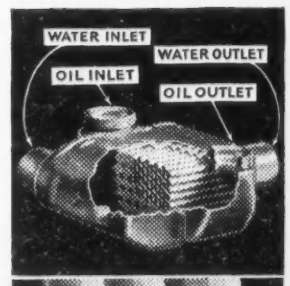
Seven of these schools are now in operation.

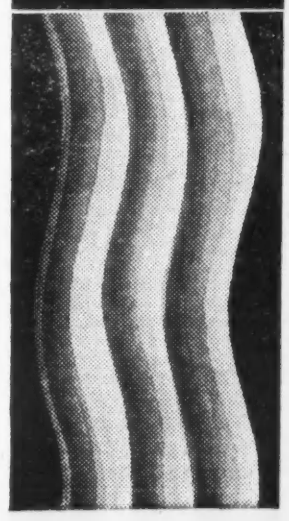


THE PUBLIC EXPECTS OIL COOLING ON THE NEW MOTOR CARS

Oil cooling is now here, as definitely as the shock absorber and the radiator thermostat. The automobile buying public has stamped its "OK" on the oil temperature regulator. Many prospects already look for it; all of them will want it in the next car they buy.

Harrison has made oil temperature regulation both dependable and inexpensive, in the Viscon. A Harrison engineer will gladly show you how this heat-exchanger for controlling the temperature of lubricating oil is adapted to automobile, truck, bus, marine and aircraft engines.





THE HARRISON VISCON OIL TEMPERATURE REGULATOR

PRODUCT OF HARRISON RADIATOR CORP.
LOCKPORT, NEW YORK